Industrial FINISHING

CHNOLOGY DEPT.

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Welcome COLOMBIA...

to Membership in

UNITED NATIONS!

ON JANUARY 17, 1944, Colombia became the 35th member of the United Nations. Situated in the extreme northwest of South America, this Republic extends up to the Republic of Panama. It has a coast line of 782 miles on the Pacific Ocean and 1056 miles on the Carribean Sea. Bogota, the Capital (founded in 1538) is located in the Andes, 8,660 ft. high. Its soil is fertile and the country is rich in minerals. Seventy-five miles from Bogota are the Muzo emerald mines which have been in operation for four centuries. Near Somondoco are the Chivor emerald mines, once abandoned, but recently rediscovered and opened again by an American Company.

ADVANCE PAINT COMPANY

Manufacturers of Wood & Metal Finishing Materials

INDIANAPOLIS, INDIANA

...Again...A FAST
INFRA-RED BAKING
RINCONTROL
IT IS NOW possible to obtain Rincontrol textured enamels made with less critical oils *without sacrificing production speed.* This is especially true where infra-red baking equipment is used. For example, the new type Rincontrol bakes out in as short a schedule as 10 to 12 minutes and provides a finish that is comparable with our standards in appearance as well as in uniformity of pattern, toughness and abrasion resistance.
Rincontrol is available in a full range of colors — write for details.
Box 124
ROXALIN Flexible FINISHES
INCORPORATED
ELIZABETH F. NEW JERSEY
When the finish counts
. . . . use ROXALIN

Strip Enamels

FROM ANODIZED ALUMINUM WITHOUT ATTACK

Enthone Enamel Strippers have no action on anodized aluminum, aluminum alloys, zinc or magnesium.

Their use means fast stripping of enamels without attacking the base metal.

Enthone Enamel Strippers are emulsion type materials used mixed with water and in the temperature range from 160 to 168 F. Urea-formaldehyde, melamine, glyptal, phenolic and other synthetic enamels are removed quickly and cleanly.

Special Strippers for Special Problems.

Tell Us Your Problem

ENTHONE

THE **ENTHONE** CO.

442 ELM STREET NEW HAVEN 2, CONNECTICUT

ZAPONITE Duranite

Mark These

ZAPON

REG. U.S. PAT. OFF.

Names Well-

For the Best in Finishes

Zapon's trademarks for finishes, although TODAY THEY ARE AT WAR, still retain, in full integrity, everything they have stood for, the highest quality and the best in finishes. They are well worth noting for your postwar planning.

ZAPONITE based on the name Zapon, now over a half century old, stands for a long series of wood finishes. Every Zaponite has a specific job to do, new ones are added from time to time, older ones improved. They have a wide application and those interested in finishing furniture, radio cabinets and countless other items should mark the name Zaponite well.

Duranite is the trademark name of Zapon's great family of heat reactive metal finishes. Duranites have unsurpassed qualities and are famous for their contribution to speed in production with rugged wearing characteristics. If you finish metal or plastic products, look into the DURANITES . . . they will more than meet the needs.

★ *It's not too early to think of postwar planning and remember, the finish is vital from the very conception of the product. Consult us now. See how these famous Zapon names can go to work for you.* ★

IT'S THE FINISH ON THE JOB, NOT IN THE DRUM, THAT COUNTS

ZAPONITE—Reg. U. S. Pat. Off. DURANITE—Trade Mark

ZAPON

REG. U.S. PAT. OFF.

ZAPON DIVISION · ATLAS POWDER COMPANY

Eastern Sales: Stamford, Conn. Western Sales: North Chicago, Ill.

INDUSTRIAL FINISHES

TWENTIETH YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor E. A. DOSCH, Assoc. Editor

Vol. XX, No. 4 FEBRUARY, 1944 $2.00 a Year

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Wherever you find
Uncle Sam's Air Corps, Signal Corps or Ordnance Depots
you'll probably find

DOLAN'S *"Unquestionable Quality"* FINISHES

We have supplied many thousands of gallons of

★ O. D. LUSTRELESS
★ O. D. SEMI GLOSS
★ REFINISHING PRIMERS
★ ROT INHIBITERS
★ ZINC CHROMATE PRIMERS
★ AIRPLANE DOPES
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★ MARINE FINISHES, ETC.

We invite your inquiries on any Specification Finishes.

V. J. DOLAN & COMPANY, INC.

Manufacturers of "UNQUESTIONABLE QUALITY" *Industrial Finishes*

1830 N. LARAMIE AVE., CHICAGO, ILLINOIS

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INSIDE DRUM CLEANER

For both 30 and 50-gallon drums or for 50 and 110-gallons

Most compact and efficient drum cleaner made!

The necessity for thorough cleaning of insides of drums is obvious, and this latest inside drum cleaner does the job quickly and better than any other method. Mechanism ingeniously arranged to care for end cleaning as well as sides. Investigate this machine. Descriptive literature sent on request.

The Vol-U-Meter Co.
75 Wilbury Place
BUFFALO 16, N. Y.

Letters from Readers

Screen Stenciling Equipment

Can you please tell us where we can buy materials to make silk screens for stenciling ammunition boxes? We have AA-1 rating.—Q. Furn Co.

Information supplied.—ED.

Waterproof Sealer

There have been several letters in the past few issues of this magazine pertaining to waterproof sealer. We would like to have you furnish us with the names of the sources that have this material.—W. B. Co.

We have sent some names and addresses in reply to the above. Would appreciate hearing from other concerns that can supply this item.—ED.

To Finish Net Floats

In the November, 1943 issue of INDUSTRIAL FINISHING, mention is made of a company seeking help to solve a problem of finishing net floats. This item appears on page 72, and is signed "M. B. Co." We feel sure that we have a finishing material which will meet their requirements and will, therefore, appreciate it if you will either give us the name of the company, or ask them to contact us.—F. J. Donahue Varnish Co.

Will Lacquer Nameplates

We have read, in November issue of INDUSTRIAL FINISHING, about the desire of a manufacturer to lacquer small nameplates ¼x1½-in. (page 74). We do this type of work here and if the firm, "M. O. Co." will supply us with more information, we

NEW PERIOD
WOOD and METAL
FINISHES

DON'T PROCRASTINATE

We have all heard that "Procrastination is the thief of time." To which we can add Foresight, Opportunity and good production schedules. Your finishing problems should be our problems and we are prepared to work on them. If our present line of NEW PERIOD finishes doesn't meet your exact requirements our laboratory will formulate a finish to meet your production schedule. Some of our products are listed below. Write today.

BAKING ENAMELS
ENAMELS—LACQUERS
SEALERS—PRIMERS
SYNTHETICS
VARNISHES—SHELLAC
FILLERS—STAINS
FINISHING SUPPLIES

Working samples sent on request.

NEW YORK WOODFINISHERS' SUPPLY CO., INC.
109 IMLAY STREET
BROOKLYN 31, N. Y.
EST. 1917

Perfection
Synthetic
FLAT
FINISHES

5
DISTINCT
ADVANTAGES

1 A beautiful rubbed effect appearance.
2 Waterproof, liquor-proof.
3 A finish free from orange peel.
4 Will not change sheen upon standing.
5 A perfectly clear finish that brings out the beauty of the wood and stain.

A full range of sheens

PERFECTION PAINT & COLOR CO.
INDIANAPOLIS 2, INDIANA

FINER FINISHED FURNITURE
A LIQUOR PROOF WATERPROOF FINISH
PERFECTION PAINT & COLOR CO.
INDIANAPOLIS

will be glad to give them quotations on finishing the plates, and will also send them samples of our work.—Attleboro Printing & Embossing. Co.

To Paint Floor Lines

We are interested in contacting a manufacturer of hand machines for painting lines on factory floors. Would appreciate your sending us any information you may have on this subject.—W. R. Co.

Non-Shrink Putty for Filling Cracks

In April, 1943 issue of INDUSTRIAL FINISHING, on page 84, you have an inquiry from "T. Mfg. Co.", on what to do with cracks and checks. May we have the name of the manufacturer of the non-shrink type of putty made especially for this purpose that you recommend?—Woodcraft Corp.

Our letter in reply to the above lists five products and the manufacturers of same, but we will appreciate hearing from others who have something of this kind.—ED.

Laboratory Top Finish

I am a reader of INDUSTRIAL FINISHING and want the address of some firm making an enamel suitable for a wood top in a laboratory in a hospital — something acid-proof or acid-resisting.—R. C.

Multiple-Drum Agitators

Please refer to page 32 of the December issue—the article regarding multiple drum agitators. Will you please give us the name and address of the manufacturer?—V. E. Co.

It's The Vol-U-Meter Co., 75 Wilbury Place, Buffalo 16, N. Y.—ED.

Dipping Machine

Can you possibly refer us to concerns that make dipping equipment for wood parts? The machine we have in mind should not be too large and should be for an air-dried set-up. From what we understand, drying is accomplished by the slow emergence. We know of one concern in New York, but their delivery is too slow. We have an AA-1 for our needs.—E. M.

Some companies that made dipping machines are now engaged in more essential war work. We have submitted a few names of concerns that

Repeat Performance by RINCO

MANUFACTURERS everywhere have been asking for repeat performances by Rinco, a new wrinkle made from non-critical oils.

United's technical staff worked many months to develop and perfect RINCO until it surpassed average high standards of performance.

RINCO has all the characteristics of old type wrinkle in appearance, uniformity, application, baking schedules, etc.

It is available in all colors and shades.

[Order 5 gallons of RINCO today and give it a severe production test.]

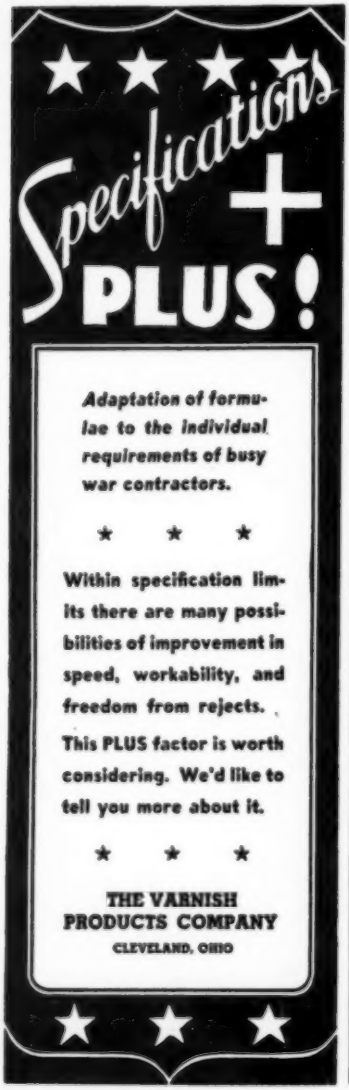
LACQUERS—THINNERS
METALLIZED FINISHES
SYNTHETICS AND
SPECIAL COATINGS
FOR ALL SURFACES

United Lacquer Mfg. Corp.

General Offices, Laboratory, Factory: LINDEN, N. J.

NEW ENGLAND MFG. DIVISION, BOSTON, MASS.

BACK THE ATTACK! **BUY WAR BONDS!**


Specifications
+
PLUS!
Adaptation of formulae to the individual requirements of busy war contractors.
★ ★ ★
Within specification limits there are many possibilities of improvement in speed, workability, and freedom from rejects.
This PLUS factor is worth considering. We'd like to tell you more about it.
★ ★ ★
THE VARNISH PRODUCTS COMPANY
CLEVELAND, OHIO
★ ★ ★

did make or sell dipping machines. We will appreciate getting some more uptodate information on this ourselves. Can some reader help us?—ED.

Spray Booth Coating

We will appreciate any information you can give us in locating a source of supply for a spray-booth coating that can be scraped off with the deposited paint accumulation. We do not want a coating that has to be washed off, as this material is not satisfactory with us.—P. M. Co.

May we have some advice on where to purchase a compound that we can use on spray booths and the floor around spray booths, to make those areas easier to clean?—A. W. Co.

Information supplied by letter.—ED.

"Protektol" Available

In the comments which we sent you for your "Looking Ahead" section, we mentioned that "Protektol," Ault & Wiborg's transparent stripping lacquer, is available now only on high priority orders.

This is not entirely true, and we want to correct the statement.

There are two types of "Protektol" —one for plastics and one for metals. The "Protektol" for plastics is available only on high priority orders, while the "Protektol" for metals does not require a high priority.—INTERCHEMICAL CORP.

Who Supplies "Iradite" Paint?

We have been referred to you by the National Bureau of Standards, in reference to "Iradite" paint, a "paint dip process." We are vitally interested in same process and any information regarding "Iradite." Will appreciate your help.—X. Metal Finishers.

We have never heard of this and so far haven't been able to find anyone who does know anything about it. Our directories show no paint by this name. Nearest thing we find is "Iridian." Will someone please identify this material or give us a lead as to where to get information?—ED.

Wants "Qualasole"

We are trying to find out where to purchase an item known as "Qualasole", or we believe formerly known as "Fin-oil". We believe this item

(Continued on page 98)

UNDERCOATS

. . . Good Undercoats

need HIDING POWER first of all . . .

- **Strong ADHESION to the surface—**
- **SMOOTHNESS of texture—**
- **TOUGHNESS—**
- **And sufficient FLEXIBILITY to prevent tension, pull, cracking, or peeling.**

Have you checked up on your Undercoat lately?

● The alert manufacturer is never too busy to consider a better product.

STILLE-YOUNG

MANUFACTURERS: LACQUERS · FILLERS · STAINS · ENAMELS · PAINTS

2300 North Ashland Avenue — Chicago 14, Illinois

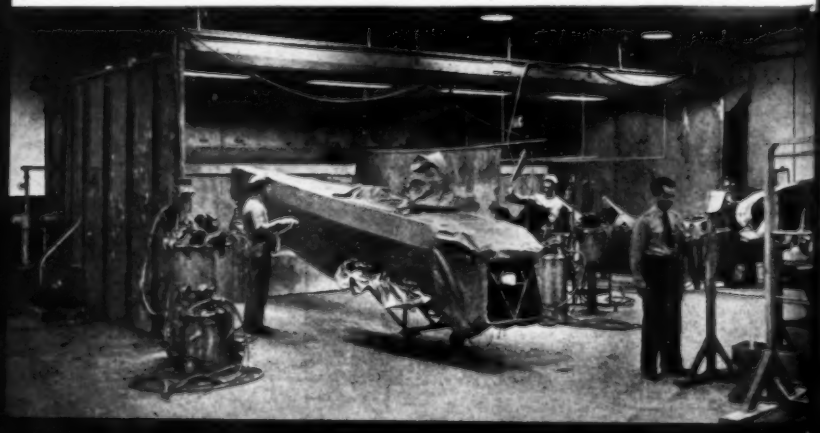
Binks Installation speeds production of Navy

LIFE SAVERS

Speed, coordination, and safe, healthful working conditions are made possible by a Binks scientifically engineered spray painting system at the Howard Aircraft Corporation plant at St. Charles, Ill. Here Howard builds the fine, sturdy Navy ambulance plane which is known as the Howard Nightingale and which is equipped with first aid instruments and materials, two Stokes stretchers and an extra seat for the doctor or nurse.

Howard also builds the vitally important NH-1, which is the Navy's Blind Flying Instrument Trainer. It is flyable from three positions and is fully equipped with all the instruments necessary for training young Navy fliers in "blind flying." In appearance the two planes are almost identical — and in fact they are, except for the interior arrangements and outside color.

Below is pictured one of the booths for spraying fuselage sections in the Howard plant. The smaller pictures show the completeness of this Binks installation for spraying large and small parts of Howard planes.



ARMY E NAVY

The Binks installation illustrated here is not only arranged for economy of space and ease of handling parts to be finished, but provides for a steady delivery of filtered air in a volume slightly greater than that removed from the room through the water curtains of the Dynaprecipitor water-wash spray booths. This eliminates dust from the department and results in a better control of finishes.

To keep pace with rapidly accelerating war production, Binks has introduced many new techniques and improved equipment . . . all of which will be available to peacetime users when the war is over.

There is a Binks engineer in your neighborhood. He will be glad to help you with your spray finishing problems.

BINKS MANUFACTURING COMPANY

1114-40 CARROLL AVE., CHICAGO 12, ILLINOIS

● *WRITE TODAY FOR YOUR COPY OF BINKS CATALOG DATA BOOK*

NEW YORK - DETROIT - SAN FRANCISCO - PHILADELPHIA - PITTSBURGH - CLEVELAND - ST. LOUIS - MILWAUKEE - BOSTON - LOS ANGELES - SEATTLE - WINDSOR, ONTARIO, CANADA

THE LILLY COMPANY
HIGH POINT, N. C.

Now! Over here—— for one last BIG push...

ROLL UP OUR SLEEVES!

Let's all pitch in for one last push to help the boys in all parts of the globe put the squeeze on the Axis powers once and for all time. Let's intensify our production, buy war bonds to the limit and in every other way possible, contribute our portion to an early and final victory. We accept Lilly's responsibility to that end—bond buying to the limit; management and labor cooperation in the interests of peak production. Needed finishes for war products occupy our full attention now. When it's all over, Lilly's facilities, plus war-time experience, will be available for the making of better civilian finishes.

★

LILLY VARNISH COMPANY
INDIANAPOLIS, IND.

A.C. HORN PRODUCTS
1897–1944

INDUSTRIAL FINISHES

Proven ability to meet ever-changing conditions is definitely indicated by forty-seven years of steady growth. Years providing a wealth of experience. Pioneers in the invention of methods and products for protection and decoration, Horn maintains three completely staffed laboratories—research, factory control and raw material control — skilled chemists and engineers at your service.

The Horn Policy

"Produce for our customer the finest finishing product for his purpose at the lowest possible cost to him."— A.C. Horn

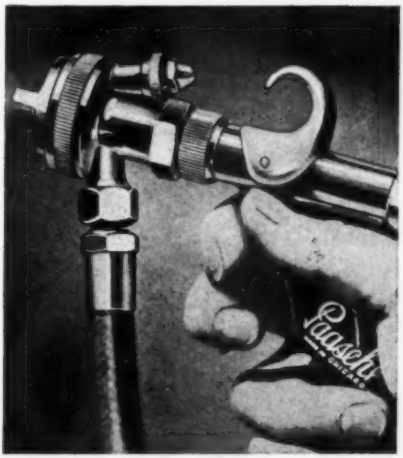
Interested manufacturers are invited to enjoy the advantages provided through this experience and trained personnel, available on inquiry — address

A. C. HORN COMPANY
PRODUCTS FINISHING DIVISION
LONG ISLAND CITY 1, NEW YORK

CHICAGO • HOUSTON • LOS ANGELES

Finish the Job FASTER

with PAASCHE AIRPAINTING Equipment



CUB High-Production AIRBRUSH

- **Lightweight, perfect balance, enable operators to work longer hours at top speed.**
- **Superior performance speeds production rate; assures quality finishing.**

When you put Paasche Airpainting Equipment on the job, you save mighty minutes. Work that required tedious hours is done in a fraction of the time—and Victory speeded.

Paasche Airpainting Equipment steps up production — saves man-hours — improves quality. Proof of this is evidenced in hundreds of factories—in shipyards—in aircraft plants—and on those big construction painting jobs.

Investigate the Paasche time-saving Automatic Units—safer, cleaner Water Wash Booths—the High Production Airbrush illustrated—and other equipment for faster finishing.

Write for full information and literature. Paasche Airbrush Co., 1917 Diversey Parkway, Chicago 14, Illinois.

Paasche AIRPAINTING EQUIPMENT

Manual, automatic and special airpainting equipment, airfinishing booths, pressure regulators, airconditioners for compressed air lines, air dusters and stripers.

Coat the Base of Statuettes with

Cellusuede FLOCK

Another example of how flock can be used to add a touch of quality to a product and also provide a non-scratching base.
Cellusuede Flock is easily applied to wood, metal, glass, paper or cloth . . . a product of many uses. Supplied in one-pound bags, twelve to a case, solid or assorted colors. Also 10- and 50-pound bags. A wide variety of rich colors . . . Rayon or cotton.

Write for color card, samples and prices.

CP
Cellusuede Products, Inc.
ROCKFORD, ILLINOIS

No. 30
Moisture Repellent Sealer

PLYWOOD'S
Dependable Protector

If you're going in for equipment made of plywood, don't fail to get the facts about No. 30—a moisture repellent sealer that will give your products the utmost protection against atmospheric or other conditions.

Proved in the toughest assignment—on America's planes

We've specialized in wood finishes for over 75 years. We know from intensive research and wide experience what properties a finish must have to meet the effects of climatic and seasonal changes, capillary pore conditions, swelling of fibre, influence of different glues, adaptation to unequal contraction and expansion, etc.

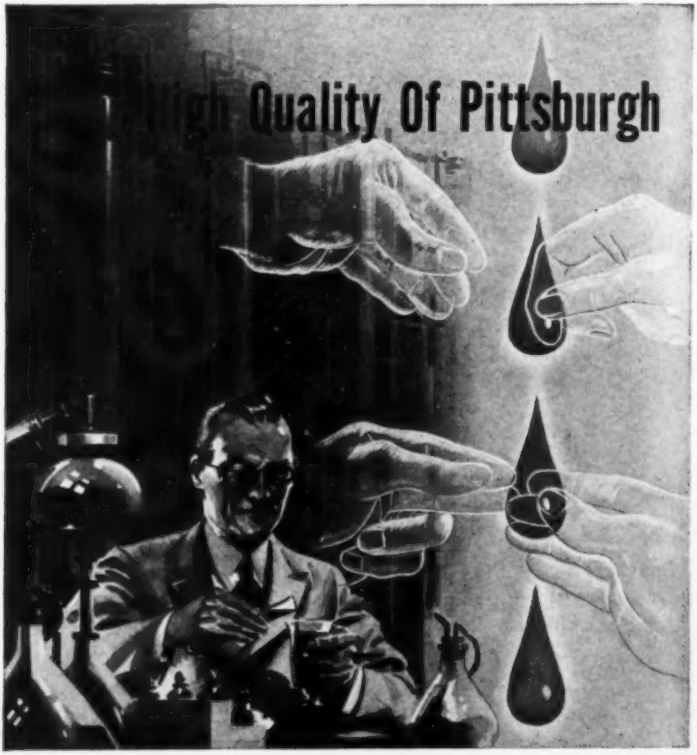
Moisture Repellent Sealer No. 30 has an outstanding record of service on airplanes, gliders, army cabinets, cold storage fixtures, shower stalls and other equipment that must withstand the most severe tests as well as atmospheric conditions in all parts of the world. And it's ideally suited to modern production schedules. Handles fast and fills well. Provides a firm bond for the finish that goes over it.

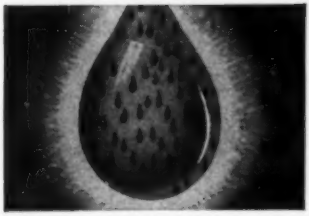
Conforms with Specification AN-S-17.

Write for the facts on Sealer No. 30

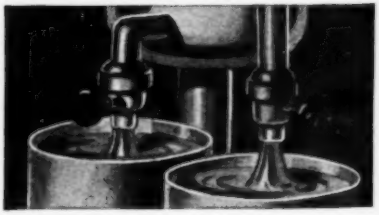
MURPHY VARNISH COMPANY
NEWARK SAN FRANCISCO CHICAGO

MURPHY *Protective* COATINGS



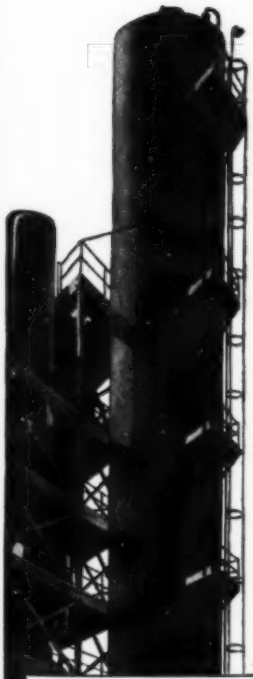


Inside Story of Oil—This diagram shows the "dual nature" of a drop of good quality linseed oil. The dark "droplets" represent molecules that are more valuable for paint-making. The lighter ones are less desirable in a paint film but possess other commercial applications.



Two Oils From One—As if possessed of magic fingers, a special solvent divides each drop of oil and selects the molecules that are most useful for paint making. The result is that two streams of different oils, never before available, flow from the tower. One is an improved drying oil urgently needed for high-quality paints.

Industrial Finishes Assured By New "Molecular-Selection" Process



As if by magic fingers, a complex natural oil is taken apart to produce a superior drying oil urgently needed for Pittsburgh Industrial Finishes

THE toughness and all-round goodness of any industrial finish depend to a high degree on the quality of the oil that goes into it. That is why Pittsburgh's pioneer work in developing the "molecular-selection" process is so important to industry.

"Magic Fingers" In Action

"Molecular Selection" starts with natural oil rising in continuous flow in a 70-foot tower. At the same time, a special solvent cascades down through the tower. As if possessed of magic fingers, this solvent selects those molecules that are best suited to paint-making.

One natural oil enters this tower—two new oils come out. The first is a paint-making oil which vastly improves the drying qualities of the many Pittsburgh finishes in which it is used and enables Pittsburgh to control uniformity of performance. The second oil is of value to other industries.

Today vast quantities of Pittsburgh war finishes are being supplied for all types of equipment used in global warfare. Pittsburgh's exclusive "molecular-selection" oils are one of several factors making it possible to produce finishes that often exceed minimum specification requirements.

Expert Advisory Service

Our technical men are always available for consultation. Their vast experience formulating industrial finishes can often save you time and money. Whenever you need help, get in touch with us.

Where Magic Fingers Work

● The only structure of its kind in the world, this 70-foot tower is now converting ordinary oil into a superior drying oil for many Pittsburgh paints and finishes, plus a second oil of value to industries in which its non-drying qualities are an asset.

PITTSBURGH PLATE GLASS COMPANY, Industrial Paint Division, Pittsburgh, Pa.—Factories: Milwaukee, Wis.; Newark, N. J.; Houston, Texas; Los Angeles, Calif.; Portland, Ore.—Ditzler Color Division, Detroit, Mich.—The Thresher Varnish Co., Dayton, O.

PITTSBURGH *Industrial* **FINISHES**

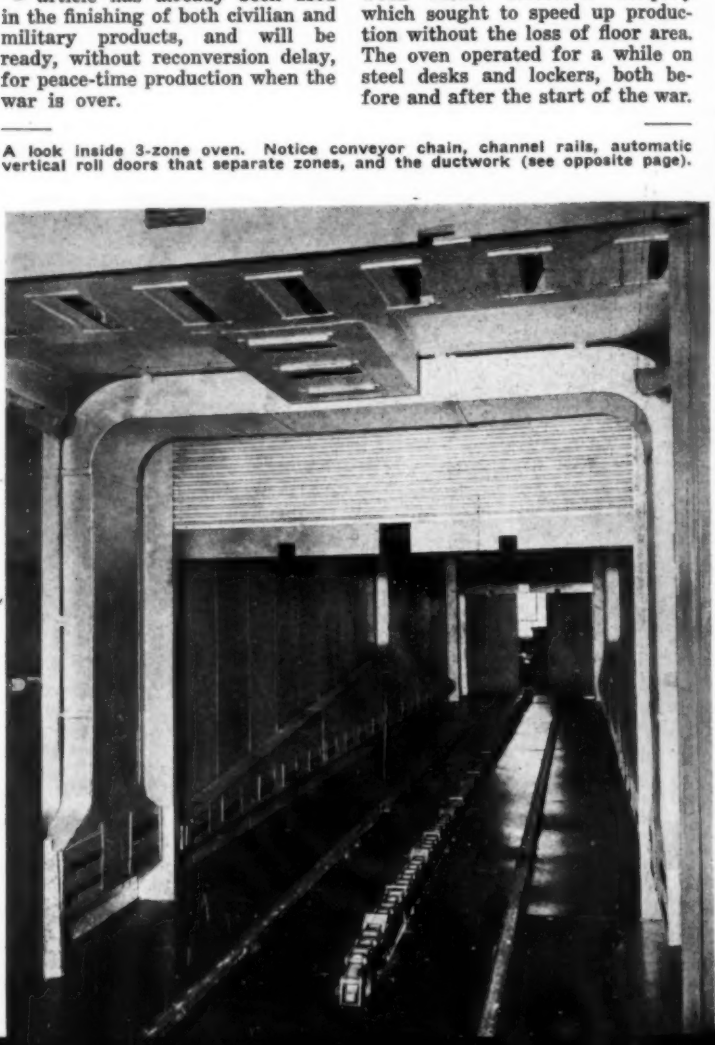
PITTSBURGH STANDS FOR QUALITY PAINT AND GLASS

Flexibility of Automatic

THE 3-ZONE automatic conveyer oven described in this article has already been used in the finishing of both civilian and military products, and will be ready, without reconversion delay, for peace-time production when the war is over.

It was installed just before the war in the plant of a large New York metal furniture company which sought to speed up production without the loss of floor area. The oven operated for a while on steel desks and lockers, both before and after the start of the war.

A look inside 3-zone oven. Notice conveyor chain, channel rails, automatic vertical roll doors that separate zones, and the ductwork (see opposite page).



System Shows Saving

Then it was switched over to the finishing of small ordnance items, which conversion was accomplished without delay because of the type of trucks that were designed originally as part of the system.

Both oven and trucks were engineered to obtain maximum flexibility and economy. The trucks are of the caster platform type, with two solid front casters and two swivel trailer casters. The trucks are large enough to handle desks in groups, two units wide and two units high. The platforms are provided with corner sockets to take four removable corner post angles which support cross rods and hangers that are used when running small parts.

The oven will handle one truck every five minutes, each truck loaded with 1000-lbs. of metal parts, either large or small. Powered by a floor-type conveyor chain, trucks are propelled automatically through preheating, baking and cooling zones, all of which are separated by automatically controlled and motorized doors. All heating and air circulation is likewise automatically controlled.

After installation of the oven system, the management succeeded

BY C. A. LITZLER

Chief Engineer for the Industrial Oven Engineering Co.

The design and layout of this installation is presented here because it solved a difficult problem so well. It exemplifies a type of automatic finishing equipment that handles a big variety of production items economically and efficiently. It represents the trend to an efficient combination of semi-automatic handling equipment designed to work with a high speed convection-heated oven.

in stepping up production of the department approximately 50%, and did so at an average baking cost of only 48 cents per hour. Major economies were effected by the design of the heating system

Diagramatic side elevation of 3-zone oven, the interior of which appears on opposite page. Vent air from section A of oven is blown into pre-heating zone to bring the work partially up to temperature. Air from section B of oven is recirculated back to air heater for reheating and recirculation.

itself and in the amount of labor saved, as compared to previous operating and oven procedure.

For instance, in the cooling zone, high-velocity outside air is passed over the work and, raised in temperature, is taken into the system as preheated make-up air for the air heater. Similarly, in the preheat zone, oven exhaust air is used to start the primary evaporation of paint solvents.

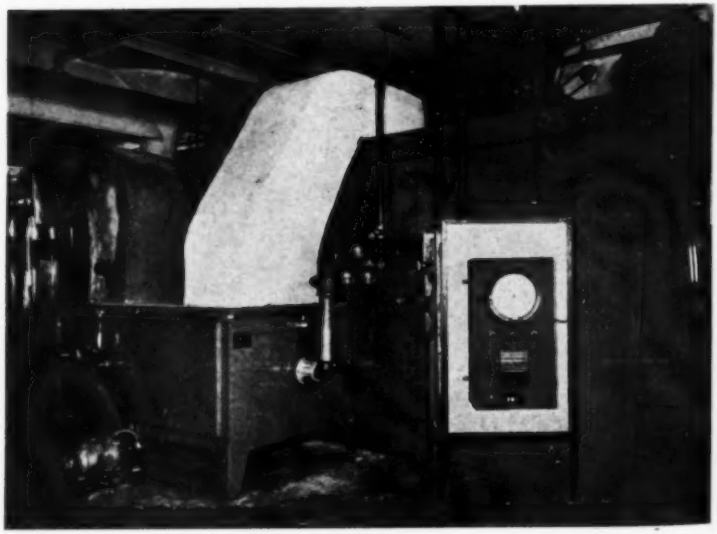
Completely automatic controls enable one man to operate the oven, and properly planned slopes of flooring, to the entrance and exit, make his work of loading and unloading the oven easier.

Operation of the System

Following is a detailed account of the operation of the system:

At the beginning of the preheat zone, the truck is manually engaged in the retractable pushers of the floor conveyor, and remains in this zone for five minutes. In order to separate this first zone from the baking zone proper, some type of sealing device was required; several varieties were considered, including vertical doors and air curtains. The matter of headroom, along with other design conditions which would have made these devices impractical, finally led to the decision to use vertical motorized steel rolling doors. These doors are the horizontal slat type, made of 16-gage steel and complete with with automatic raising and lowering mechanisms. A motor-driven timer causes the doors to raise as the work advances into the first stage of the oven zone. After the conveyor has indexed itself one station, it remains at rest for approximately five minutes. *(to p. 24)*

The gas-fired heater, motor that drives fan, heavy ductwork and control board.



IT WILL PAY TO BE READY

Here at Reliance, these are mighty busy days. Our fullest energies are going into the production of specification finishes for many kinds of war equipment—chairs and files and desks, lockers and cabinets and beds, trucks and trailers and ordnance, airplanes, too!

Behind the scenes, quietly, steadily and intelligently, our engineering and research staffs are devoting themselves to the development of new and finer finishes to meet civilian needs *promptly* when V-Day comes.

Doubtless you, too, have great plans for postwar production—plans that will demand the very latest and most suitable finishes science can offer. We suggest that *now* is a good time to write us—in confidence—about your postwar plans so that we may work with you on your V-Day finishing problems.

It will pay to be ready when Victory comes!

RELIANCE VARNISH COMPANY, INC.
Louisville **Chicago**

Ductwork in the heating zone has been laid out in such a manner that the heated air is applied in larger quantities at the conveyer stations than in the space between the stations, in order to dry the work most effectively. This results not only in faster drying but in more uniform temperature in the work itself.

Indexing Positions Within the Baking Zone

There are 12 conveyer indexing positions within the baking zone proper. Thus with the normal setting of the timing device, opproximately 60 minutes are required for the work to pass through this zone. A second rolling door is installed at the exit end of the heating zone to separate it from the final or cooling zone.

The cooling zone is equipped with inlet grilles placed at the bottom of the walls, and the entire zone is placed under suction from the recirculation duct of the air heater. The work is cooled and the air is heated as it passes up and over the work. This heated air is then taken directly into the recirculation duct, whereupon it enters the heating system as make-up air to offset that which has been vented at the front end of the oven.

Gas-Fired Air Heater; Recirculation; Exhaust System

The oven's heating system consists of an external gas-fired air heater with a capacity of 13,000-cu.ft. of air per minute. The heater is directly connected to suitable supply ducts extending along either side of the baking zone, see illustrations.

The recirculation side of the air heater is connected to a pick-up duct located in the hot end of the banking zone. This pick-up duct within the oven is connected to a cooling air pick-up duct in the exit vestibule.

The exhaust system consists basically of one transfer fan, which fan vents practically the entire volume of air at the entering end of the baking zone. This air is transferred through the fan into pressure ducts in the entrance vestibule. These ducts transfer exhaust air over the work, thereby beginning primary oxidation of the paint solvents. Then this air is again picked up by a separate exhaust fan, and transferred out of doors by means of an exhaust stack.

Arrangement of the exhaust ducts, which remove even the slightest traces of thinners before the work gets into the "setting" period, assures a clean atmosphere in the baking zone. Setting takes place at the exit end of this zone, and only the air in this section is recirculated.

Details of Chain Conveyor; Its Drive and Controls

The conveyer consists of a single-strand, 4-in. pitch drag chain equipped with retractable pusher dogs on 4-ft. centers, and retractable retarder dogs on alternate 22-in. centers. The chain rides in heavy channel tracks equipped with wearing plates, and its sprocket, at the entering end, has take-up bearings. The drive of the conveyer consists of a variable-speed Motodrive.

The head shaft of the conveyer is driven by means of a finished roller chain drive, the driving sprocket of which is equipped with a mercury-type hydraulic clutch to limit torque and to prevent jamming of the conveyer in case of accident. To prevent creep of the conveyer after shut-down by the indexing device, the drive mo-

MAHON *Coordinated* FINISHING SYSTEMS

HAVE ESTABLISHED REMARKABLE RECORDS IN BOOSTING PRODUCTION OUTPUT . . . . . .

with less men ★ in less time ★ at less expense

In the Finishing Departments of many war production plants, Mahon engineers have accomplished exceptional results in combating delays and slowdowns. Increased production with decreased manpower is continually being achieved by the institution of more modern finishing methods—by revision and re-arrangement of plant and production layouts—by replacing obsolete and inefficient machinery with *faster* and *better* equipment.

Your entire FINISHING *problem*—cleaning, rust-proofing, painting, drying and baking—can be turned over to Mahon's engineering staff with complete confidence. The Mahon organization, backed by years of research and practical experience in this highly specialized field, can be depended upon to do a thorough engineering job in converting your Finishing operations into a balanced, fast-moving production line.

Keep in mind *after-the-war* requirements when planning Finishing Equipment to speed *present* production, Mahon co-operation can be particularly helpful.

THE R. C. MAHON COMPANY
DETROIT CHICAGO

Manufacturers of Metal Cleaning Machines • Rust Proofing Machines • Hydro-Filter Spray Booths • Ovens of All Types • Filtered Air Supply Units • Hydro-Foam Dust Collectors—and Many Other Units of Special Production Equipment—including Complete Finishing Systems

MADE TO Move the Earth!

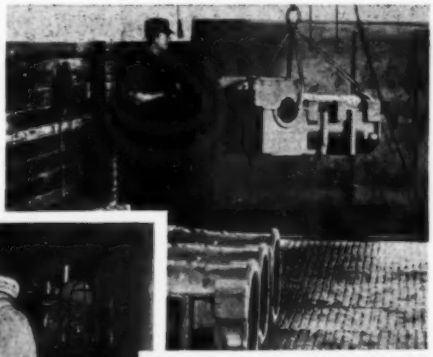
Cletracs Stand Up to Tough Going

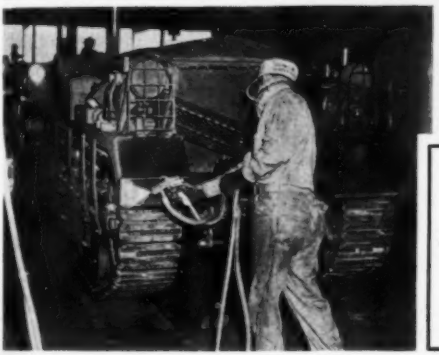
Tractors are the "strong-arm guys" on our war team! They do the tough work—build roads and flying fields, tow fighter planes and giant bombers. Every day tractors in service haul tons of equipment, move mountains of earth!

The Cleveland Tractor Company builds Army tractors that pitch in and work . . . and finishes them the same way—with Sherwin-Williams Industrial Finishes.

SHERWIN-WILLIAMS

PROTECTION FOR OUTDOOR STORAGE. *A dip in Sherwin-Williams lacquer sealer means non-porous, dirt-free, rust-free gear case castings . . . after months of outdoor exposure.*





TWO COATS OF DEFENSE. *Sherwin-Williams red oxide primer and olive drab enamel give Cletracs tough protection for a tough job.*

Sherwin-Williams Fighting Finishes Help Cletrac to Lick Wear, Weather, Rust!

TRACTORS built for the Army by the Cleveland Tractor Company must take it—and then some! For finishes that successfully combat the attacks of wear and weather, Cletrac uses Sherwin-Williams products throughout.

These "plus" finishes provide sure surface protection. What's more, they're *engineered for production,* making an important contribution to Cletrac's wartime efficiency. For instance, among several Sherwin-Williams Finishes used on each unit, is a special lacquer sealer . . . formulated to give gear case castings extra protection during outdoor storage. Dipped in this sealer, castings can be stored in the open yards of the plant for as long as six months without rusting, corroding or weathering. This is *only* one example of how Sherwin-Williams Industrial Finishes, *engineered for production,* are making "tough going" easier for wartime production men. The Sherwin-Williams Co., Cleveland 1, O.

INDUSTRIAL FINISHES

tor of the main drive motor unit has been equipped with a disc type built-in brake.

The conveyer control operation is as follows:

1) Timer indexes.
2) Doors rise.
3) Conveyor advances 5-ft.
4) Doors close.
5) Timer recycles and resets.

Adjustable Cycle Allows Changes in Speed and Time

The entire cycle is completely automatic and is adjustable to give conveyer speeds of from 10 to 18-ft. per minute between stations; the baking time is adjustable from ½ to 2 hours. Average time in the baking zone is 60 minutes.

The variable-speed drive unit, which drives the chain conveyor, is located beside the exit end of the oven.

For temperature control of the oven a large-diameter chart, mercury-actuated air-operated throttling recorder controller is used. The bulb of the unit is placed in approximately the center of the oven at the oven roof. The control is effected at two points by use of the recorder in the oven and an air operated high-limit controller in the air supply ductwork to limit maximum temperatures through the air supply fan.

Safety Control Equipment

The safety control equipment includes electronic safety control equipment with an adjustable time delay relay, Airflo switches on all fans and the necessary solenoid-type valves. Full electrical ignition is provided through means of a push-button ignition station and a high voltage ignition transformer. The entire installation was designed in accordance with Factory Mutual Insurance Co.'s requirements.

A check on the temperatures in the unit shows an average temperature of approximately 175° F. in the entrance preheat vestibule and a temperature uniformity of plus or minus 5° F. in the baking zone proper. Temperatures are held within the baking zone to these close limits and are entirely suitable for baking of white and pastel finishes where cabinet bodies and drawer assemblies have to be matched for final assembly.

Adaptable to Variation in Size and Shape of Products Finished

One of the main production problems to be solved by this installation was the wide variation in shape and weight of the production items to be baked. In addition, some small parts were dipped, and the balance were sprayed. *(to p. 30)*

JOHNSON'S Wax-O-Namel for Ammunition Boxes*

OFFICIAL U. S. NAVY PHOTOGRAPH

Hundreds of thousands of Navy 20 mm. ammunition boxes now wear a coat of Johnson's Wax-O-Namel. Why Wax-O-Namel rather than ordinary paints? Because makers of Navy ammunition boxes know that tough, hard-drying Wax-O-Namel more than meets Navy requirements *without* cost penalty. And in production, Wax-O-Namel assures trouble-free performance. It is easily and economically applied either by spraying or dipping. Cured either in conventional ovens or in infra-red drying banks.

The finish is uniform, hard, scratch-resistant, durable and rejects are practically unknown.

Hi-Bake Johnson's Wax-O-Namel is also used by manufacturers of such Naval equipment as galley desks, doors, officers' furniture, clothes lockers and the like. Perhaps Johnson's Wax-O-Namel... fine enamel impregnated with wax to provide extra protection through production and in service... can help solve *your* finishing problems. Write for the full facts. Do it now.

Back the attack... with more War Bonds

S. C. JOHNSON & SON, INC.
PRODUCT FINISHES DIVISION
Department IF-24
Racine, Wis.

The solution was provided by a careful layout of trucks both for large items that could stand on their own bases and those that must be hung. All various parts were actually laid in position as the trucks were designed. Position of work on the trucks governed not only truck design, but also duct outlet and inlet position.

As another step in the overall design, a complete plant layout of the finishing room was made. The two spray booths were relocated in direct relationship to the entrance end of the oven. Careful thought was given to the design and position of a dip tank and drainboard for the smaller dipped parts. The tank and drain were designed to facilitate loading of parts on the truck after draining. The position of this truck was oriented directly to the two spray booths and the entrance end of the oven.

This type of finishing equipment has come into great demand because of war production requirements. In the postwar era its operating economies will be yet more important.

What We Will Use Tomorrow

BY A. W. TRITSCH*

THE PAINT industry is doing its postwar planning in connection with users of finishes, and every day brings up some ideas of new products that can be finished when the war is over.

In my opinion wood products, including the solid woods, plywoods and plastics will hit a new high in many markets. We will see a heavy demand for bed springs, bunks, beds, chairs, benches, gliders, home and office furniture, other household utilities, toys—and this is a big field. Also, the airplane industry, boats, buses and other types of transportation will involve heavy production. Already a lot is being learned on finishing these surfaces, and they will have a big start.

As to metals, we have learned and adapted many things in connection with the cleaning and preparation of metal surfaces, because of wartime demands. Under peace time conditions it would have taken years for the metal finishers to adopt these processes. These will be enlarged and further improved and developed.

It took the war demand of time and element and results to accept most generally a zinc chromate primer, or a modified type, to replace the old standard red lead as a rust inhibitor, although for years the paint industry has tried to prove this theory. Also, rigid specifications on war implements helped get proper cleaning, rust-inhibitive priming and the correct finishing.

Many plants, because of war contracts, now have modern finishing units. Before the war they never knew what finishing was. These plants, some with elaborate cleaning and finishing installations, will continue to make products to keep these lines in operation.

With female operators on many cleaning and finishing lines, a new technique is being discovered and developed. The manual spray gun is a more sensitive tool in the lady's hand, and more artistic pride is being shown by the ladies.

Flo-coating has not been extended as yet to where it should go, especially as a means of treating

*With Thompson & Co., Pittsburgh, Pennsylvania.

ICING UP of propellor blades has long been one of the major hazards of high altitude flying. To counteract it the blades have been flooded with a constant stream of alcohol—but this has never been a satisfactory answer. The alcohol supply adds weight and invites fire.

A & W, a few months ago, found the real answer—paint! Paint which never quite dries. Paint entirely different from the quick-drying, marproof A & W finishes you have used for beauty and protection—because it is designed for a very special job. The principle involved by which the ice cracks off the paint film when the plane is in flight cannot be revealed now. But the principle of coming to A & W for resultful technical service is again demonstrated by our success on this important war product.

This is but one of many finishing problems which Ault & Wiborg has solved for manufacturers of such products as aircraft, washing machines, ironers, cabinets, refrigerators, air conditioning equipment, stoves, automobiles, bicycles, office furniture, venetian blinds and many other metal and wood products. If you are experiencing finishing difficulties, perhaps we can help you, too. Write today to Ault & Wiborg Division of Interchemical Corporation, Empire State Building, 350 Fifth Avenue, New York 1, N. Y.

Ault & Wiborg

DIVISION OF INTERCHEMICAL CORPORATION

or cleaning metal prior to applying finishes.

Dipping has more possibilities, in that clinging drops can now be eliminated by passage through an electrostatic field, eliminating long drain boards, getting better adhesion, and a smoother, more uniform thickness coating.

Automatic spray applications will be more extensively used if chucks and dies and holders for intricate items are developed.

We will see many improvements in all types of drying equipment—in gas-fired, steam and electric ovens; also in infra-red lamp installations. More air-conditioned finishing rooms are used today and they have proved their worth; more will be in demand for controlled, dependable finishing.

So, what's ahead is what we are learning today out of necessity; it is what we will use tomorrow. The old adage, "Necessity is the Mother of Invention," will help us in What's Ahead.

Infra-Red Paint Drying Systems in Demand

Infra-Red Engineers & Designers, 1633 E. 40th St., Cleveland, Ohio, announces that it is in position to design and supply infra-red equipment for curing and baking paint and lacquer coatings that are applied to the surfaces of various products for protective and decorative purposes

Mr. William J. Miskella, owner and manager of the organization declares, that, "The proper application of infra-red in industry is 90% good sound engineering and 10% equipment. The use of bare lamps is taboo." Mr. Miskella predicts that there will be a great demand for postwar use of infra-red equipment.

The type of custom-designed equipment, in which the organization specializes, is Miskella's insulated-reflective sectional-oven system, which is a combination of convection and infra-red principles. To these may be added temperature controls, conveyors and special automatic equipment.

Binks Mfg. Co. is Presented the Army-Navy "E" Award

At elaborate and colorful ceremonies, Nov. 23, 1943, employees and management of Bink's Mfg. Co., Chicago, Ill., were presented with the Army-Navy "E" production award for excellence in war production.

Present at the ceremonies were Governor D. H. Green of Illinois; Col. H. J. Woodbury, U.S.A.; Lt. Commander G. G. Storer, U.S.N.R., resident inspector of naval material; and many distinguished military and civilian guests.

Mr. J. F. Roche, President of the Company, called many of the oldest employees up to the stage with him to thank them for their conscientious efforts and loyalty, and was himself greatly surprised to have the employees call the turn on him by presenting him with a beautifully engraved and lettered resolution of appreciation from all the employees, as prepared by the Labor Managment Committee.

This picture shows the flag being held by Col. H. J. Woodbury, USA, at the left and Lt. Comdr. G. G. Storer, USNR, at the right. In center stands J. F. Roche, President of Binks Mfg. Co. Navy E pins were presented to employees by Lt. Cmdr. Storer.

SPOTS AND STAINS DO A "FADE-OUT"

SUN SPIRITS

cleans metal tubing quickly . . . efficiently

A manufacturer of aluminum tubing, for the aircraft industries, had to meet the most exacting Government requirements as to cleanliness of the finished product, both inside and out.

A Sun Doctor of Industry was called in, to assist in working out their cleaning problem, which involved the removal of the stickiest drawing compounds.

Tests were started with Sun Spirits, after a thorough check of all their operations. Results proved Sun Spirits to be the answer! There were no spots or stains . . . the finished work met every desired standard.

Now, at lower costs than before, Sun Spirits is doing a cleaning job that has received the commendation of both the Aircraft plants and the Government inspectors.

For further information on Metal Cleaning, write for your free copy of "Case Histories of Cleaning Up War Parts."

SUN OIL COMPANY, Philadelphia 3, Pa.

Sun Oil Company, Limited, Toronto, Canada

SUNOCO

SUN INDUSTRIAL PRODUCTS *HELPING INDUSTRY HELP AMERICA*

They're putting on a FIGHTING FINISH with DeVilbiss Guns

• These DeVilbiss Gunners are helping to put the finishing touches to the Axis. They're hustling a hard fighting finish onto war equipment to speed it to the battlefronts.

The upper view shows the painting of Spicer transmission cases that help power the "Jumpin' Jeep". Below, you see how DeVilbiss meets Bell Aircraft's need for the speedy painting of doors and other parts for the famous Airacobra.

These and other war-working DeVilbiss installations have a head start for conversion to peacetimes, too. They are composed of standard individual units which have been perfected in design to function with the highest degree of efficiency, either alone or in combination with each other. Their conversion from war to peacetime production requirements can be accomplished with little loss of time or additional investment.

That's why so many firms are installing DeVilbiss Systems for what they will do for them *now* and *after* the war.

THE DeVILBISS COMPANY • TOLEDO 1, OHIO
Canadian Plant: WINDSOR, ONTARIO

DE VILBISS
Spray Systems

SPRAY EQUIPMENT • EXHAUST SYSTEMS • AIR COMPRESSORS
HOSE AND CONNECTIONS

Easy

RECIPROCATING ELECTRIC SANDER

SAVES YOU up to 75% on TIME, LABOR and ABRASIVES

for . .

De-Burring
•
Sanding
•
Rubbing
•
Polishing
•
Wet or Dry Applications

The fast straight line reciprocating action of the EASY Sander mechanically duplicates the approved back-and-forth motion of hand finishing. It has proven indispensable in the manufacture and maintenance of aircraft propellers, firearms, dies, transparent plastics, furniture, and hundreds of other products of wood, metal, plastic, alloy, or composition materials.

Designed for dry or wet work with sandpaper, water, oils, compounds or emulsions . . . Portable or stationary operation as required on large and small parts . . . sanding pads of correct size and shape for working cured or flat surfaces.

WRITE for literature and ask us for a free demonstration. Let us prove that the EASY will speed your production even with inexperienced help.

Detroit Surfacing Machine Company

7433 W. Davison Avenue **Detroit 4, Mich.**

Future and Postwar

PROBABILITIES IN INDUSTRIAL FINISHING

BY H. H. MILLER

Future outlook in reference to available raw materials and finishes, new finishing methods, specification buying, probable sales policies & sales volume.

PREDICTIONS of all kinds concerning industry are rampant. We hear that the future will be a plastic age, a plywood age, or a light alloy age. Perhaps all are partly true. In any case, great changes will take place in many fields, and the paint industry will be no exception.

If we were to limit our observations to this one industry, we can classify the probable changes broadly into four groups:

1) Raw Materials; A) Pigments
B) Vehicles
2) Finishing Methods
3) Selling Methods and Policies
4) Volume

Obviously, in a limited space, all we can do is to hedge-hop, merely touching the high spots, which would show up about as follows:

Raw Materials for Manufacture of Finishes

Pigments: Here we can look for further developments in the rutile titanium pigments, perhaps to the elimination of the anatase type. As the supply of ore seems adequate, we can expect to have these pigments with us for a long time.

At least one new metal protective pigment has made its appearance. This is an ammonium ferrous phosphate which, it is said, when used in conjunction with zinc chromate, enhances its rust-preventive properties.

Aluminum powder and other metallic powders will again make their appearance in force, although this may be delayed, as WPB still exercises control over aluminum stocks to be used for the manufacture of aluminum pigments.

Fire-retardant pigments will be more widely used, such as lead and zinc borates. Coincident with these, much work will be done to develop vehicles suitable for the purpose.

Fluorescent and phosphorescent pigments will be available in quantity and will find new applications. These may even extend to service as wall and ceiling finishes for lighting purposes, and to give new decorative effects.

Vehicles: The future offers a chance for wide speculation. No one doubts that alkyds will hold the center of the stage. Some people believe that phenolic manufacturers can see "the handwriting on the wall"; but it is more probable that we will see new and different phenolics, better than any so far known.

In an interesting article in "The Oil and Colour Trades Journal" of September 24, 1943, Mr. N. A. Bennett is quoted as having indicated in his Chairman's Address to the Oil and Colour Chemists

Association on last September 17, that "The main hope of the paint industry lay, in the industrial field, by the introduction of types of paint able to aid increase of speed of production and possessing greater and still greater durability. The new idea of regarding the natural oils, and to some extent resins, notably shellac, as primary raw materials, capable of being converted into highly chemically active compounds suitable for incorporation into synthetic resin during manufacture of the latter, opened up endless possibilities of obtaining rapid set, coupled with great durability."

Finally there is always the possibility that out of the intensive research done in all chemical fields during the war, will come a completely new binding material.

One danger is also pointed out in the same article from which I just quoted. That danger lies in the possibility that the paint industry, failing to convert its varnish plants into the kind of chemical plants capable of producing the synthetic medium necessary for modern finishes, will become merely "pigmenters." The ultimate result of such a policy would be the absorption of this phase of paint manufacture by the synthetic resin manufacturers.

Finishing Methods

Standard methods will be rapidly improved, with the emphasis on more and more speed. At least one new baking method will make its appearance — "electronic" baking. In the baking of metal radio tubes (see Radio Corporation of America "Electronics in Industry") the baking time was cut from 45 minutes to 15 seconds Such a time-saving method will make itself popular, and would seem to have wide application.

Selling Methods or Policies

Naturally we can look for increased competition. Many new synthetics will be offered the consumer of industrial finishes, and it seems next to impossible that the average purchaser will even try to comprehend the merits of each. Most buying will be done on results, and cost per gallon will not be too important. The paint manufacturer, who can show his production evidence—laboratory and actual production evidence—of outstanding performance and economical costs, will take the business. Less and less business will be done on the friendship basis.

Because of the vast amount of experience and data accumulated by the paint industry, covering all phases of finishing room methods and operations, it is possible that the paint manufacturer may contract to run these departments for metal finishers. Paint manufacturers have, in the past, leased departments in department stores to promote sales of their products and thus relieve the store manager of the details. Certainly finishing departments have been a source of annoyance to metal fabricators, and many would welcome such a plan. If generally adopted, it would place the smaller paint manufacturer at a disadvantage, and he would have to concentrate on the smaller paint consumers.

Specification Buying; Outlook for Volume Sales

Specification buying of industrial finishes has been so general during the war period, that this method may become permanent with many consumers. It has a certain definiteness that appeals to scientifically trained purchasers. It has advantages for the paint

Rodine

Makes Pickling Efficient

This steel surface photograph (magnified) was pickled in an uninhibited acid bath. Note the deep pits, and that the surface is visibly crystalline.
This surface pictured was pickled exactly like the other except that RODINE was added to the acid solution. Only scale pockets and roll marks are visible; no pitting occurred.

Steel requires pickling to remove scale whether the fabrication is for steel plates for battleships, airplane parts, motor vehicle or ordnance parts.

Rodine in the pickling bath confines the acid action to removing the scale and inhibits acid action on the clean metal. This controlling action of Rodine in preventing the acid from dissolving clean steel, saves acid by eliminating a needless waste. The life of the pickle bath is increased and better pickling is accomplished.

Our technicians are available to adapt Rodine or other ACP Products to your individual production problems. Time will be saved if you will give us as complete details as possible concerning your methods and requirements.

Manufacturers of Inhibitors & Metal Working Chemicals

AMERICAN CHEMICAL PAINT CO.

AMBLER ACP **PENNA.**

Note—West Coast Plants may address inquiries and orders for prompt delivery to Leon Finch, Ltd., 720 East 59th St., Los Angeles, California.

AMERICAN CHEMICAL PAINT COMPANY, AMBLER, PA.

Please send me general Technical Service Data Sheets on

Name_____ Title_____ ☐ *Rodine*

Company_____ ☐ *Pickle Bath Toner*

Address_____ B-2

manufacturer also, who has an outstanding product to market and can show actual physical proof to substantiate his claims.

Volume: Regarding this feature there is divided opinion. There are those who foresee a world wherein many metal products will be replaced with plastics. They further believe that such plastics will require no finishing and therefore the volume of industrial finishes will suffer.

Others foresee such increased production of metal products that the volume will increase tremendously. Probably both are partly true and the truth lies somewhere between.

Possibly, after the close of the war, there will be a definite falling off in volume, due to the period of transition from production of war goods to the production of civilian goods. Experts guess this period at anywhere from two to six months. Immediately after the adjustment, there should be a notable increase, because of both increased domestic and foreign markets. Plastics, if they become a factor, will help to swell this volume, because, for a considerable period they will require finishing. The day when they will seriously affect volume in an adverse manner seems far in the future.

Altogether, the immediate future has a promising outlook, and if the paint industry can maintain the momentum it has developed during the past few years, it has no reason to be apprehensive. On the contrary, such strides might even be made, whereby the paint manufacturer may become the ultimate manufacturer of plastics.

Many concerns are interested in coatings that will enable them to dispense with electroplating.

Finishes After the War

BY ALBERT B. LONG*

THERE should be a plentiful supply of raw material for the industrial finish manufacturer at the close of the war; but the availability will depend on the speed with which the government will release its control over the flow of these materials, as well as the base materials entering into their manufacture. The industrial finish manufacturer, not having a re-conversion problem on his hands, can immediately take care of civilian demands provided there is freedom of action for all concerned in the manufacture of a product from the time of its basic beginning to its ultimate use by the consumer.

New and improved products developed under stress of warfare to meet new requirements and raw material shortages, will be of considerable value after the war, because they surpass similar products made previously both as to economy and performance. Just as specification requirements have been an incentive to newer and improved finishing products, they have been a help to the manufacturer, in his finishing problems.

Facilities have been improved for mass production in the form of automatic sprayers, conveyors and drying ovens. Manufacturers who have made these improvements and additions, with reference particularly to baking facilities, will want to use the more durable bake-type finish. On the other hand, those who have not found it necessary to make these changes during the war period will have the air-dry types with improvements in drying speed.

*Technical Director, Randolph Finishing Products Co.

O.W.I. Photo

Wide World Photo

Better PAINT ADHESION Assured by OAKITE-CLEANED Surfaces!

FOR PLANTS ENGAGED ON war orders . . and soon available for other metal-working concerns . . is a newly developed acid detergent material specially designed to (1) quickly remove various soils, light machining oils and drawing compounds, assuring a no water-break surface and (2) coat steel parts with a light fine grained crystalline formation which aids in firmly bonding paint, lacquer, varnish and similar finishes to metal surfaces.

Prevents Rusting of Parts

Used in pressure-type washing machines, this unusual material provides a NEW, successful answer to the problem of preventing rust occurring on parts DURING fabrication and BEFORE finishing. It is safe to washing equipment . . does not harm surfaces . . has long solution life.

Oakite Technical Service FREE!

A wide range of other Oakite materials may also be utilized to meet individual surface preparation problems. Your nearby Oakite Technical Service Representative will gladly analyze your organic finishing operations and help you put this work on a FAST, low-cost basis. Inquiries invited and promptly answered . . no obligation, of course.

OAKITE PRODUCTS, INC., 32F Thames St., NEW YORK 6, N. Y.

Technical Service Representatives Located in All Principal Cities of the U. S. and Canada

OAKITE MATERIALS METHODS SERVICE

CLEANING FOR EVERY CLEANING REQUIREMENT

Different Processes for Cleaning Metal

Part 2 of a two-part article wherein the author emphasizes the necessity of cleaning all metal surfaces in preparation for painting . . and describes briefly some of the different processes used for this work. (Part 1 was published in Dec.)

BY G. C. CLOSE

BRASS and bronze parts may be cleaned in the strong solutions used for steel, but care must be exercised, as prolonged immersion will produce a tarnish. If such tarnish develops, it will be necessary to "bright dip" the parts in a solution of cyanide or sulphuric acid. Where there is enough brass or bronze parts to warrant it, use of a separate tank and solution for these metals is recommended.

There is some danger that an alkaline cleaning solution will deposit a thin but adherent alkaline film over the surface of the parts. This film hinders either electroplate or paint adhesion.

After the alkali cleaning operations preparatory to painting, it is always recommended that the articles be given a final rinse in any proprietary phosphatizing solution, composed of phosphoric acid, in combination with ether alcohols. Such a treatment will effectively neutralize any alkiline salts, and improve the adhesion of the paint to the metal.

How Rapid Cleaning Can be Accomplished

The ideal method for controlling solution strength in the hot still tank is by titrating a sample of the used solution. However, when the facilities of a chemical laboratory are lacking, an experienced operator can closely estimate the condition of the solution by its appearance and by the time required to clean metal surfaces.

The time required to clean metal surfaces in still tanks of hot cleaning solution depends on many factors; for example, the type and extent of deposits present, type of cleaning material used, and the temperature of the solution. Considerable work is done today in still hot tanks, where degreasing is accomplished in anywhere from five seconds to one minute; but, of course, where heavier deposits, sometimes of the insoluble type, are present, a pre-soak is recommended.

Cleaning time may be shortened as much as 80% to 90% by the use of a precleaner before the parts are immersed in the hot still baths. A precleaner, commonly employed in conjunction with the hot still tank process, is an emulsion degreasing solution, as described in the following paragraphs. Temperature of the hot still tank bath

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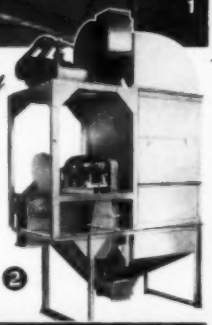
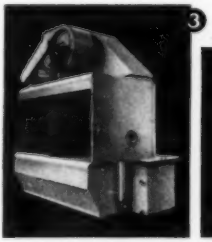
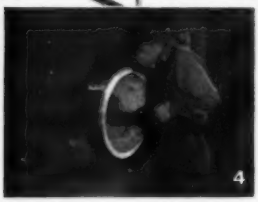


1. A Peters-Dalton, Inc. installation designed for large department devoted to double spindle grinding and polishing lathes. In foreground is a 28,000 C.F.M. Hydro-Whirl unit.
2. A rotor type 4,000 C.F.M. Hydro-Whirl designed for core sand handling.
3. Booth type Hydro-Whirl collector suited for flexible shaft grinding and burring operations. Center divider removable, making full width single booth if desired.
4. Closeup of booth showing grinding of large magnesium parts one of a battery of Hydro-Whirl units.

Peters-Dalton, Inc. Hydro-Whirl Collectors are accepted standard for magnesium dust collecting.





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is also a factor in cleaning speed, and for practical purposes the temperature of the bath should not be allowed to fall below 180° F.

Emulsion Degreasing

Emulsion degreasing solutions are widely used for precleaning prior to cleaning by the hot still tank method; also prior to anodizing, chromodizing, phosphatizing, and electroplating. Emulsion degreasing is often employed for such difficult operations as removing tar deposits from road-working machinery, and for decarbonizing engine parts during overhaul.

The emulsion degreasing compound is a complex mixture of oil-soluble soaps and powerful dirt-removing solvents. For best results the solution should be agitated during use by some suitable means. The precleaning action of the solution is accomplished by impregnating the adherent oil or grease with the emulsifier and solvent, thus causing the dirt to become water emulsifiable and easily removed by subsequent rinsing.

In some cases emulsion degreasing alone does not give a chemically clean surface. Parts removed from the solution may retain a thin film of water-emulsifiable oil; but such a film is easily and quickly removed in the hot still tank, and the saving of time by using both methods together is substantially great over that required by still-tank cleaning alone.

Emulsion degreasing is not harmful to the light metals, and is widely employed for aluminum sheet stock. It has the ability to remove manufacturers' stamping ink and other objectionable paint coatings.

Electro-cleaning is limited to steel, copper, brass and certain die-cast alloys. To my knowledge, the electro-cleaning of aluminum is still in the experimental stage. The equipment required for electro-cleaning consists of a tank, an alkaline solution (generally referred to as plater's solution), heating elements to raise the temperature of the solution, and a source of electric current supply. The work is suspended in the solution and forms one electric pole. The other pole, although sometimes formed by the tank walls, should preferably consist of a series of electrodes suspended in the solution, and as near the work to be cleaned as possible.

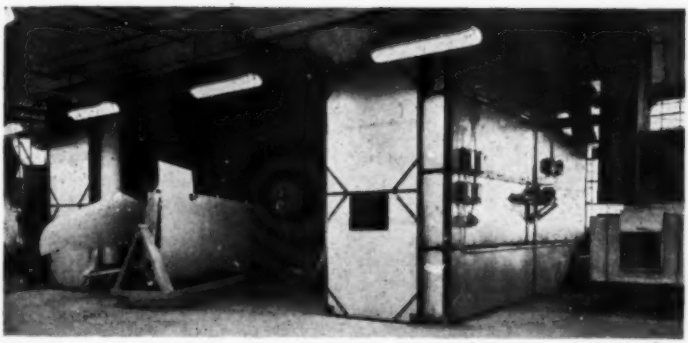
Cleaning speed depends, to a large extent, upon the density of the current entering the solution. It has been proved that electric current will enter the solution more readily from a sharp edge than from a flat surface. For this reason the immersed electrodes should present as many edges as possible. One way to increase the number of edges present is to bore numerous holes through the electrodes. The common practice of using the tank walls as the electrode is not recommended. Not only is there an absence of enough edges to assure current saturation, but electrolysis will be introduced along the welded seams of the tank walls and prove harmful to the welds.

Anodic Cleaning . . .
Strength of Current

Whether the work is to form the anode or the cathode is debatable. Anodic cleaning will require twice as much current as cathodic cleaning, to produce equal solution agitation due to the evolution of gas. This is because the water that is ionized during the process liberates twice as much hydrogen at the cathode as oxygen at the anode. On the other hand, metal impuri-

GIVING "WINGS" TO PRODUCTION

of plywood training planes!



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ties in the plater's solution will be electro-deposited on work being cleaned cathodically. A method employed by some operators, to overcome this difficulty, is to provide a double-throw switch so that the work may be first cleaned cathodically for maximum agitation; then cleaned anodically to deplate any electro-deposited dirt.

The current density for electro-cleaning ranges anywhere between 10 and 100 amperes per square foot surface of metal being cleaned, with the higher densities tending to speed up the process. The voltage applied to the circuit should be adjusted to obtain the current density desired. For maximum conductivity and rapid cleaning, the solution temperature should not drop below 175°F.

Steam Vapor Cleaning

Steam vapor cleaning is a process wherein a water-mixed cleaning solution is passed through coils, heated, then expelled through a restricted nozzle against the work to be cleaned. Both portable and stationary apparatus are available for the process. Nozzle pressures vary between 50 and 150-lbs., and the effective temperature of the expelled vapor jet may be controlled by varying the nozzle distance from the work being cleaned.

The composition of the water-mixed cleaning solution may be varied to suit specific purposes. For paint removal, strongly alkaline solutions are recommended; for lighter work and degreasing, emulsifying cleaners are available.

Portable steam vapor cleaners are useful in maintenance cleaning of the plant and equipment. The cleaning of floors, walls and windows of buildings, paint booths and stacks, and sludge pots is conveniently handled by this type of equipment. In the aircraft industry, vapor cleaners are used to clean planes that have been soiled during flight.

Vapor Degreasing

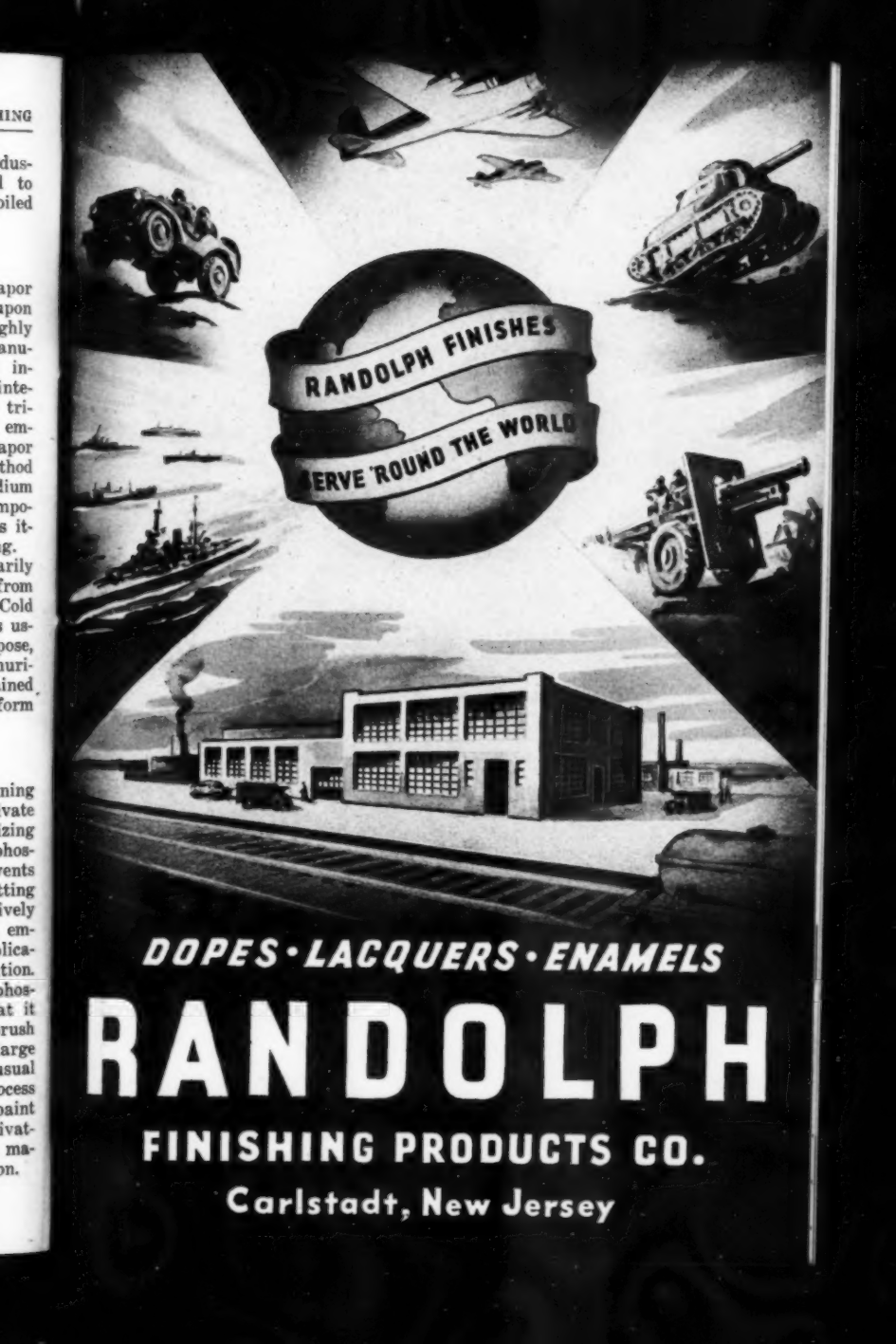
Due to limitation of space, vapor cleaning will be only touched upon here. Such machines are highly technical in operation. The manufacturer will provide specific instructions for installation, maintenance and the control of the trichlorethylene cleaning solvent employed. Suffice to say that vapor degreasing is a convenient method for degreasing small and medium size parts of any metallic composition. Vapor degreasing lends itself to high production cleaning.

Acid pickling is used primarily for the removal of heat scale from steel prior to electroplating. Cold muriatic acid in wood tanks is usually employed for the purpose, but a combination of heated muriatic and sulphuric acids contained in a glass-lined tank will perform the work more efficiently.

Phosphatizing

Phosphatizing is both a cleaning process and a process to passivate metallic surfaces. Phosphatizing solutions are composed of phosphoric acid, penetrating solvents such as alcohols, and wetting agents. When metal is excessively dirty, it will be necessary to employ a precleaner prior to application of the phosphatizing solution.

The principal interest in phosphatizing lies in the fact that it can be applied by sponge or brush to the surface of parts too large for accommodation in the usual cleaning equipment. This process produces an ideal surface for paint adhesion, and the slightly passivating effects of the solution aid materially in corrosion prevention.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Spray Booth Layout in Your Finishing Room

BY C. J. KENMORE

How to plan the arrangement of one or more spray booths in your finish room; examples of good and bad layout; what principles must be considered in the movement of air to and from exhaust fans in booths.

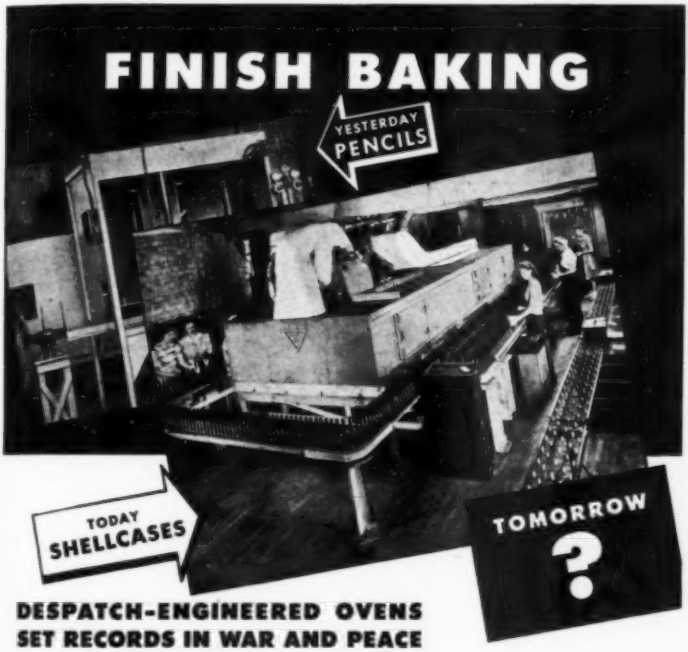
THE satisfactory arrangement of equipment in a spray room is something that requires considerable thought and planning. It is so important that only a man who is well informed on all factors involved should be entrusted with the job. The element of air movement, so little understood or appreciated by many people, enters into the picture as a dominant factor. It affects production results and working conditions every hour the spray equipment is in operation.

First of all, the product to be coated must be known. Also, the length of time required to spray one unit, the number of coats to be applied, how the parts or products will be handled between stations, the drying time allowed or required for each coat, and any operation that is performed between coats. All of these factors and more must be known before you can begin arranging equipment in the spray room with any degree of success. In other words, each item or number of items in any arrangement must be calculated as a custom-built installation.

The floor space available is always a problem. First of all, spray booths should be separated from all other operations. The spray room should be the cleanest area along the manufacturing production line. The certainty, probability or possibility of dirt and dust entering the room must be carefully considered.

The most difficult exhaust problem is to create a good working condition in a single room without a spray booth (with exhaust fans placed in the wall or ceiling). It is almost impossible to move the air, with any degree of control, over the entire area. This type of exhaust should never be considered unless great volumes of air can be easily drawn into the room and moved along continuously to the exhaust fans.

Another difficult problem is to install a spray booth in a small closed room so it will operate effectively and economically. The air being exhausted through the booth by the fan creates a partial vacuum in the room. As a result, air rushes into the room, at high velocity, through every opening, regardless of how small it is. The fan motor, laboring to pull a partial vacuum, becomes heated, and it churns the inadequate supply of



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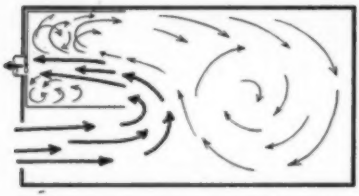

Fig. 1—Floor plan of an inefficient arrangement. Heavy arrows show the main current of air; light arrows indicate several strong eddy currents which are wasteful and harmful.

air. Naturally, the fan can push out only as much air as enters the room through the "leaks." Needless to say, a spray booth, operating under such conditions, does a very poor job of removing paint mist, which was of first consideration when the booth was installed.

One Spray Booth In a Small Room

A spray booth installed in a small room that has an open door may or may not work satisfactorily. The position of the booth in relation to the open door must be considered. Air, like many other things, follows the course of least resistance. As it moves from the entrance of the room to the exhaust fan, it may create eddy currents which are detrimental to the effective operation of the spray booth. In other words, the air current is not streamlined.

To cite an example of this, take a room that is 10x15-ft., with a door along one 10-ft. wall. Also, along the same 10-ft. wall, you place a 6-ft. spray booth backed up to the wall. The incoming air would be pulled through the open door and twisted around the spray booth wall into one side of the 6-ft. spray booth opening, and finally it would reach the exhaust fan. Such air movement would create eddy currents inside the booth. These eddy currents would carry some of the paint fumes and paint-laden air in a circular motion toward the front of the booth and blow it out into the room—just the reverse of what you were striving to accomplish. This is due to no fault of the equipment, but rather in its incorrect arrangement.

Now take this same room and spray booth, and place the spray booth anywhere along the wall opposite the door, as shown in Fig. 2, for example. The exhaust air will move across the room and into the booth in a reasonably uniform flow over the entire front area of

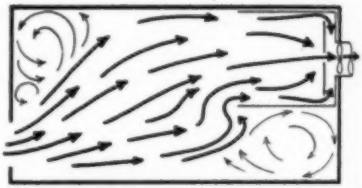

Fig. 2—Here is an improved layout, as compared to what appears in Fig. 1, although small eddy currents, shown by light arrows, are still present. The main air stream moves almost directly across the room from an open door to the exhaust fan.

the spray booth. As the air approaches close to the booth it will pick up velocity and move to the exhaust fan in ever-increasing speed, and no serious eddy currents will be formed in the spray booth. This installation will operate satisfactorily because the arrangement of the booth, with reference to the open door, is correct.

Obviously the air inlet should be opposite the air suction, if possible, or the arrangement should be such that the air can flow freely, without obstruction, from the inlet to the outlet. Of course, there are many variations of this simple lay-

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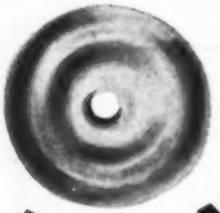

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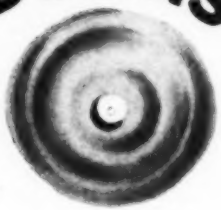

How a Du Pont Man Helps Correct a Serious Problem of Faulty Finishing

HERE'S THE PROCESS: Rolls of two-inch strap steel are finished by means of a roller-coater. The steel goes through tension rollers, then through a pair of paint rollers and through the oven. Paint is fed from an upper reservoir down to the top roller. Excess paint from this top roller drips down to a lower reservoir which supplies paint to the bottom roller.

HERE'S THE PROBLEM: The top of the metal strip receives a perfect coating. But often the bottom of the strip comes out with a very uneven coating —with the paint tending to creep away from the edges and, in general, not providing a good protective film.

ENTER THE DU PONT MAN: He discovers the trouble is due to the heat generated within the strap steel as it passes through tension rollers. This heat is transferred to the excess paint which drips down to the lower reservoir. His thermometer readings show paint in lower reservoir 6 to 8 degrees hotter than paint in upper res-

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ervoir, and too hot for satisfactory coating properties.

AND THE SOLUTION: The Du Pont Man suggests using a coil box water-cooling system to lower the temperature of paint in the lower reservoir. When this is done, temperature of paint in lower reservoir never rises above 68 degrees. And the result is a perfect coating for *both* top and bottom surfaces of the strap steel.

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out, and at times an unorthodox arrangement must be made because of local conditions.

Two or More Booths In the Same Room

When more than one spray booth exhaust must be installed in a room, you are confronted with other problems about arrangement. The question often comes up as to whether to place booths back to back or face to face in a limited area. *Whenever possible, place the booths back to back.* The next best arrangement is to set them in staggered position, face to face. The reason for staggering the booths is to avoid a situation where you have two booths "fighting each other" in the attempt to pull enough air to satisfy each exhaust fan—which is especially the case when they are close together. When space isn't limited, two or more spray booths are often arranged along one wall of the room—with a reasonable distance between booths, of course.

The exhaust pull within one spray booth is almost sure to be more or less than that from the other, even though the two fans and fan motors have exactly the same rating. Factors causing this difference, for example, may be the different amounts of accumulated paint on the fan blades, different lengths or turns in the exhaust piping, differences in the weather caps where the pipe projects outside, or differences in other features. So, with facing booths—unless they are far apart—the stronger fan will pull air away from the weaker fan and it is liable to cause paint particles to be drawn from the weaker suction booth to the stronger one, and thereby cause rejections of finished work, as well as bad working conditions for both spray booth operators.

Avoid Placing Booths So They Face Each Other

If it is absolutely necessary to arrange spray booths so they face each other, the space between them should be sufficient to allow a lower velocity of air to move into the exhaust area in front of and between the booths—a lower velocity than is created inside the booths. In Fig. 3, I illustrate, as best I can, what might happen when the booths facing each other are too close together. The area you want exhausted most is being cheated, even though the booth may have as much as a 150-ft. velocity of air. Air in the 6-ft. of space be-

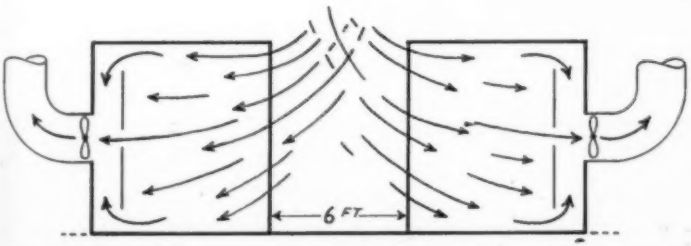


Fig. 3—What happens when spray booths are positioned face to face (opposite each other) and too close together. In "fighting each other" for what air is available, the booth with the strongest suction is likely to draw some air and spray mist from the other booth, thereby causing unsatisfactory performance.

tween the facing booths would have about a 150-ft. velocity, which would seriously affect the 150-ft. velocity desired in the booths.

In Fig. 4, with 15-ft. of space between the facing booths, there is sufficient space (300-ft. of exhaust area) for the air to push itself at 42-ft. velocity in preparation for the 150-ft. velocity, or 6,300-c.f.m. to be taken by each booth. This arrangement should be avoided unless the space between booths and the room size are quite large.

How to Plan Arrangement of Spray Booths in Room

From experiences I have had, I suggest that others follow my procedure when arranging and installing spray booth equipment. First, I make a sketch of the space allotted by the management. Then I examine a time study sheet of all the operations. I find out about the method and equipment for conveying, and all other useful information. When this data is all at hand I call in the equipment salesman, who is very well informed, with years of experience behind him. When he arrives I turn all the information over to him. Then we sit down to work out every detail from start to finish. I know that while I have had several years of experience in paint work, the spray equipment representative has information and experience of a different nature, and this has enlightened me on many problems.

Things to Remember

Here are a few things to remember when installing a spray booth:

1) The booth should be at least 2-ft. wider than the longest dimension of the largest item to be sprayed.

2) Install an exhaust fan large enough to create a 150-ft. average velocity over the front area of the booth.

3) When 1,000-cu.ft. of air is removed from a room, 1,000-cu.ft. of air must enter that room from some place. Determine where this air will come from and the condition of the air. Naturally, it should be clean air. If it isn't clean it must be filtered before entering the spray booth.

4) If you have an air bound room (no openings except doors which are usually kept closed) some arrangement of filters should be considered. Normally, the speed of air through filters should not exceed 800-ft. per minute. The filters should be placed so the air flow will be as nearly unobstructed as possible.

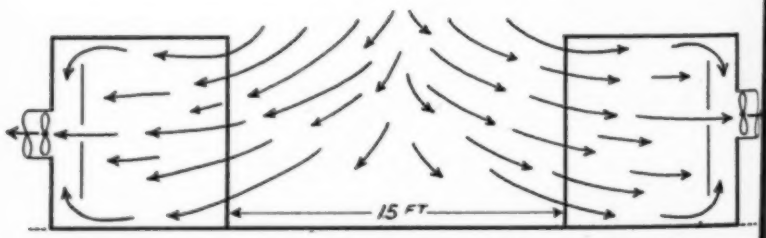
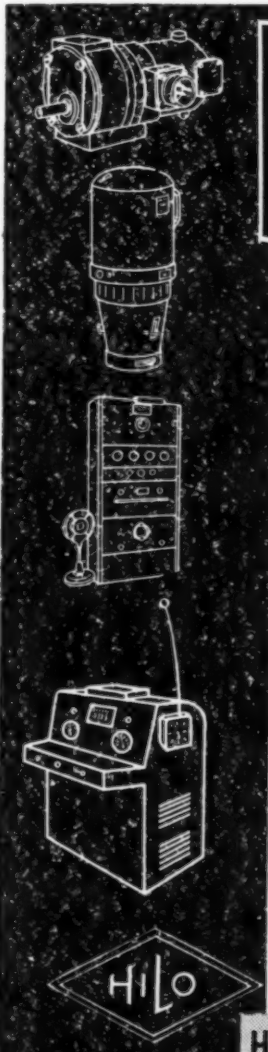


Fig. 4—Booths facing each other should be at least 15-ft. apart. When it is possible they should be set in staggered position instead of opposite each other.



WHEN DOES A RIP-PL BECOME A WAVE?

—When hundreds of manufacturers of high priority war equipment are finishing with Hilo Rip-pls

Hilo Rip-pls are suggested for radar, field radios, sound equipment, airplane panel board and control instruments, small motors, aerial cameras, and all kinds of non-porous surfaces, small and large, where beauty and "can take it" quality are desired.

Now available without priority—

Rip-pl A—Medium gloss design

Rip-pl NP—Large coarse pattern

All Hilo Rip-pls are ready for application by spraying. The usual wrinkle baking schedules give the desired tough finishes.

HILO VARNISH CORP.

42-00 STEWART AVENUE BROOKLYN 6, N. Y.

5) Use as few elbows or bends as possible in the exhaust stack. One elbow is equal, in resistance to air flow, to 10 lengths of straight stack.

6) Make sure that the stack is the same diameter or larger than the fan throughout its full length.

7) Be sure that the weather cap is constructed with plenty of opening to allow the high velocity (1,500 to 4,000-ft. per minute) exhaust air to escape freely. A poor weather cap can spoil an otherwise excellent installation.

8) Where dampers are installed in the exhaust stack, make sure that they operate easily and are not obstructions to the rapid flow of exhaust air from the stack.

9) Install only Underwriters' approved fans, motors and other equipment, this in the interest of fire prevention.

Things to Avoid

A few don'ts in reference to spray booths are as follows:

1) Don't install a spray booth that is too small. A booth that is too small is generally dirty and hard to keep clean. It builds up a serious fire hazard.

2) Don't install a fan with its motor in the exhaust pipe. Explosion-proof motors are not intended for this purpose. Totally enclosed motors become hot during operation because of lack of ventilation. This heat is not permissible in paint spray exhaust pipes, according to Underwriters' regulations; it presents a fire hazard.

3) Don't install ordinary electric lights and fixtures inside the spray booth. These present a fire hazard and this practice is not permitted by Underwriters' regulations.

4) Don't install a fan that is too small. A booth with 100-ft. velocity or less, is impractical and a health hazard to the operator.

5) Don't install obstructions in the spray booth. They will cause eddy currents of air inside the booth, and, as a result, you will have excessive deposits of paint on the spray booth walls and ceiling. This makes for higher maintenance and cleaning costs. (Note: Correctly designed and properly positioned distributing plates are not "obstructions"; see paragraph about distributing plates following paragraph No. 9.)

6) Don't install any obstruction to the air entering the booth closer than 6 to 8-ft. from the face of the booth.

7) Don't install an exhaust stack smaller than the fan diameter.

8) Don't restrict the air at either the intake or outlet end of the stack, to knock down paint particles. This reduces the effectiveness of the exhaust.

9) Don't point the outlet end of the stack into an open barrel or tank. This has been tried by thousands but has always resulted in failure.

Purpose of Distributor Plates In Spray Booths

The distributing plates inside a spray booth are engineered to create exhaust at the proper place inside the booth, and at the same time maintain, as nearly as possible, an even velocity of air flow at the face (front entrance) of the booth. There is a higher velocity of air behind these plates than through the booth tunnel.

In a spray booth wherein the distributor plates are properly arranged, you will notice that there are openings around the edges of each of the distributor plates, but at the bottom the opening is much greater. *(to page 60)*

At Your Service

Let us work with you on your post-war product finishes. Our seventy years' experience in developing protective coatings that meet the exacting requirements of specialized industries is at your disposal.

STANDARD VARNISH WORKS

Engineers of Product Finishes

STATEN ISLAND, N. Y. CHICAGO, ILL.

Paint particles in the air fall to the floor by gravity. The object is to move these paint particles at a rate of speed to overcome gravity, so we create a velocity of air sufficient to carry the paint particles the distance desired. This is a weight and force problem. Because the paint particles move down, sufficient velocity is made in the booth ahead of the distributor plates too, but mostly at the floor line. Back of the distributor plates the area is smaller so the air velocity is higher.

For example, let's consider a booth wherein the air enters the open front at a velocity of 150-ft. per minute. Assume that the air velocity back of the distributor plates is 525-ft. per minute. This is sufficient to raise the paint particles from the floor to the fan where the stack velocity again goes up in the smaller area to about 2,900-c.f.m., which will carry the particles up through several floors of exhaust stack. While these plates may appear as an obstruction, they are not; they are at the back of the booth and are performing an important function.

A spray booth is a tunnel through which high velocity air is drawn. The only part most people seem interested in is the "working depth," which is that space from the booth face (front entrance) to the distributor plates. A booth has engineering features like most all other manufactured items.

This matter of arranging spray booths to secure the most effective and economical results is really a big subject. What I have written here only scratches the surface, but it will give you some practical information which may help you to recognize what is good and what is bad in small and medium-size simple installations.

Questions and Answers

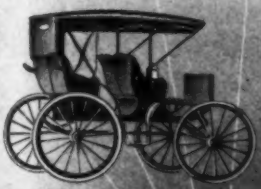
Pickled Pine or Oak Finish

The firm where I am employed has received orders for pickled pine and pickled oak furniture. I would like to get some information about this finish — what materials are needed, how the surfaces are treated and how finished.—G. O. (Finishing Foreman).

Pickled pine or oak finish is produced by first staining the wood with a light tan color, using either a reduced solution of walnut stain or a fumed oak stain. After this is dry, washcoat the surfaces of the articles with either thin shellac or sealer. When dry, sand the surface lightly with fine sandpaper and clean off the dust by wiping or blowing with compressed air. Use an oil glaze made up of white lead and zinc; spray or brush the glaze over the clean surfaces. Then wipe and blend to produce the antique effect. Some finishers add a little black to this glaze to break or dull the sharpness of the white lead.

After this thin glaze has dried, follow up with a coat of flat lacquer and, if necessary, steelwool this flat lacquer, and finally wax the surface.—FERD ROSEN.

1876



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68 YEARS EXPERIENCE...

This background of knowledge and experience is now at the disposal of manufacturers who have special finishing problems relating to war material. ☆ M & W chemists will gladly cooperate in the formulation of the proper finish to meet U. S. Government specifications. Consultation arranged without obligation. ☆ Write for booklet, "Information on U. S. Government Specification Finishes."

1944

Formula for a quick "Finish" Buy more WAR BONDS

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MAAS & WALDSTEIN COMPANY, NEWARK, N. J.

PRODUCERS OF LACQUERS, ENAMELS, SYNTHETICS AND SPECIALTY FINISHES FOR ALL PURPOSES

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Here is the article I promised. I chose the topic "Conveyorization of Operations in Product Painting or Finishing". I believe you will find this article interesting and factual. It is an exact picture of a new machine just recently installed here at Aeronca.—

Conveyorized Finishing in Postwar Production

A DIRECT quotation from an an article, "Our Postwar Lightplane", written for *Air Trails Pictorial*, by Carl Frielander, President of Aeronca Aircraft Corp., reads:

"Please be assured that your postwar lightplane is going to be about as modern and up-to-the-minute as tonight's newspaper—and not expensive. You're going to get in it about all the gadgets and safety devices that today are found on only the bigger, faster and more expensive ships—wing flaps, slots, controllable pitch 'props', retractable landing gear, radio, with perhaps, a little later, even some blind-flying instruments and de-icers thrown in for good measure — but it still will be a lightplane, cheap, economical and safe."

Cleaning, Coating, Drying Many Small Parts

Consider for a few moments the large number of small parts in the postwar lightplane. Those parts will be painted and finished in various colors. The customer will see only the beautiful yet durable finish of those parts so pleasing to the eye.

We, of Aeronca, have to consider not only the final finish, but the bonding coat of the parts upon which the finish surface is built. When you count the number of those small parts to be finished, then you begin to realize the tremendous number of man hours required to do the job. You realize that the finishing of those parts by old methods would require excessive floor space, material and help. . . .

The finish of aircraft parts must stand variable conditions, temperatures and abuses. One customer flies his plane along the sea coast. That means the finish of those parts must withstand salt water corrosion and excessive moisture. Another customer uses his plane where it is cold and windy. In either case, quick changes of temperature, expansion and contraction, salts and other elemental forces are constantly attacking the finish of the parts, and the airplane as a whole.

Get the Facts

Guardsman
AVIATION FINISHES

GRAND RAPIDS VARNISH CORPORATION
GRAND RAPIDS, MICHIGAN
NO
NO
THE

—Give Protection to Aircraft

—Give Wings to Production

CAN DO FOR YOU WHAT THEY ARE DOING FOR OTHERS

—to reduce costs

—to cut operations

—to save finishing time

Exclusive Product of

Continuously supplying finishes to Wright Field since 1935.

GRAND RAPIDS
VARNISH CORPORATION
GRAND RAPIDS · MICHIGAN

These are some of the things that production men had to consider when they started to design a machine to finish small lightplane parts on a production basis. However, our President, Mr. Carl Frielander promised an economical postwar plane and they had to get to work and solve the problem. Today, they have a machine that solves those problems. There are still a few little odds and ends to complete, but the machine has demonstrated that it is the answer to their search. The machine will soon be placed in continuous operation.

Problem Solved by One Multiple-Operation Machine

This machine will be operated by one man. He will feed the parts to be finished into the machine, and remove them when they return to him completely finished. The machine will clean the parts first with a prepared solution. Second, it will rinse them in a hot clear water rinse, and then dip them in a chromic acid dip, if necessary. Following that, it will again dip the parts in another clear water rinse and then apply the base coat and finish coat of one or more colors in one continuous cycle of operations.

A rapid curing and drying of the coatings is accomplished as the same conveyor carries the coated parts through a tunnel of infrared drying lamps.

The type of conveyor used in the machine is what is generally called a crossbar conveyor, wherein crossbars span the space between two parallel chains that are guided and driven by sprockets. The crossbars are 36-in. long, and to these are hung the parts to be cleaned. painted and dried. The travel of the conveyor includes a series of descents and ascents into and out of dip tanks containing the cleaning solution, rinses and coating materials. The conveyor is driven by a 2-hp. motor operating through two sets of reduction gears.

Sequence of Operations in Conveyorized Set-up

No. 1 tank contains the cleaning solution; No. 2 contains a rinsing solution; No. 3, a chromic acid dip if needed; then the parts are rerinsed and passed through tanks No. 4 and 5, where the base and finish coats are applied. The machine is so constructed that parts coming from blast-cleaning (and not requiring wet cleaning) can be passed directly into the tanks containing the base and finish coat materials. If a different color coating is desired, the operator just changes material tanks.

Consider for a few moments the technical side. The cleaning fluid must be maintained at a temperature not to exceed 180° F., and it must be constantly agitated. The hot water rinses must be maintained at a temperature of 200° F., and they must be kept clean by constant additions of pure water. The hot water rinse must be really hot in order to allow the dipped parts to absorb enough heat to evaporate all the water from their surfaces before they are dipped into the coating material.

For those parts that must be given the finest base-coat preparation possible to obtain, the machine is so arranged that the parts can be cleaned and dipped into a chromic acid solution. This treatment accomplishes almost the same thing as anodizing, and it provides excellent adhesion qualities for painting.

What are some of the economies made possible by this machine? First, there is no loss of material except a very small fraction by

ARREST ATTENTION

• A smart figure contributes greatly to feminine comeliness, but it takes knowledge of make-up to acquire the beauty that arrests attention.

• With commercial products good lines also play their part . . . but again it takes the fine touch of make-up or finish to arrest the attention of the potential buyer.

• Let us tell you how our Creative Studio can add attention value to your products. No obligation whatever to reputable firms.

• In case your present production is limited to war products, we are supplying protective coatings that meet all U. S. Government specifications.

Consult us on your finishing problems, whatever they may be.

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

dragout and evaporation. Second, no manual operations are involved except to load and unload the conveyor. There is no manual handling or transferring between operations. Third, complete coverage of all corners and inside surfaces is obtained. The insides of tubing, for example, are as easily coated as the outsides, and both surfaces are coated at the same time. Material in the tanks is constantly agitated.

The color tanks are portable. They are mounted on casters so the operator can change his color tank when desired.

Marking numbers on a surface with a paint stick which gives permanent markings under all kinds of weather and temperature conditions. Some paint sticks are made for marking hot surfaces; others are especially formulated for cold surfaces.

Wash, Dry and Dip Jeep Parts

THE OVERSEAS shipment of spare parts for "jeeps" has been tripled within the past several months through a split-second streamlining of packaging methods. The new technique, while boosting the weekly shipments of scout car parts from the Willys-Overland plant in Toledo, to the million and a half mark, has also resulted in a 20% reduction in packaging costs.

Jeep replacement parts, which were previously hand-dipped in rust preventative and wrapped in waterproofed paper, are given the same protective coatings under the new system, but these processes have now been placed on an assembly-line basis similar to that used for the volume manufacture of the scout car itself. As a result, the company can now move out 70-lb. export crates filled with these parts at the rate of one every 20 seconds.

The speed-up was effected by the installation of special machines for washing, drying and dipping parts automatically, an 8100-ft. monorail system and twin belt-conveyor lines that move past women wrappers at an average speed of 10-ft. per second.

Certain units for the firm's 63-hp. engine, which powers the Jeep, cannot because of their many open surfaces be treated with the protective coatings used on other spare parts. These are boxed at a mass-production tempo and small bags of silica gel are enclosed in the crates to absorb moisture and to counteract rust.

All personnel released by the new streamlining method has been transferred to other divisions of the manufacturing plant. — C. B.

Kellogg Division

of the American Brake Shoe Company

Rochester, New York

has acquired the

Crown Spray Gun Manufacturing Company

of Los Angeles

Kellogg-Crown Spray Guns, Booths, Exhaust Fans, Paint Containers and Paint Spraying Outfits will be added to the line of Kellogg-American Equipment handled by Kellogg-American distributors.

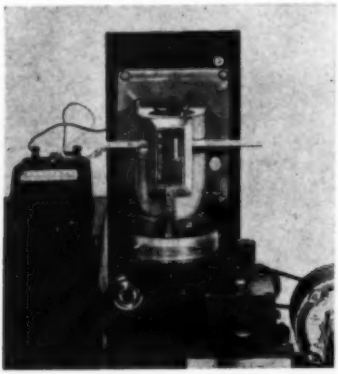
ANOTHER Brake Shoe PRODUCT

Materials Supplies Equipment

For Testing Flexibility of Paint Coatings

The development of a new machine for controlled testing, measurement and evaluation of the flexibility and adhesion of paints and other coatings, is announced by Kam N. Kathju, technical director of The Arco Co., Cleveland, Ohio, manufacturer of industrial, automotive and special infra-red camouflage paints.

The machine was developed to provide for the accurate measurement of basic characteristics and progressive deterioration of surface films. Its use in the Arco research laboratories over an extended period has demonstrated its dependability.



The flexibility of paint films, after various degrees of exposure, can be accurately measured and recorded by the use of this testing device.

Tests and measurements of flexibility are made on a machine known as the Arco Elongauge. This has been developed around a conventional Erichsen sheet-metal testing machine, which was adapted to provide complete automatic controls and accurate measurements for cycle testing. The machine is mounted with its observation well in a vertical position so that water from a hypodermic syringe is in contact with the paint film being tested. Two wires, one attached to the test panel and the other to the hypodermic needle, are connected to a galvonometer.

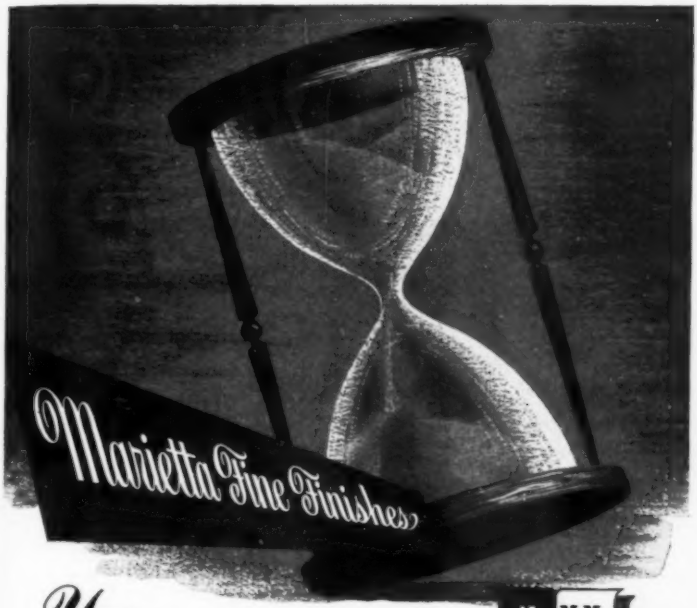
The machine is operated by a constant-speed drive geared to thrust a 3/16-in. spindle against the back of the test panel, which is clamped between two anvils. The paint film being tested acts as an insulator. When it fails, the water contacts the steel test panel and the bimetal condition completed by the presence of a copper needle causes a current to flow. This deflects the galvonometer which signals the end point of the test.

The thrust is measured in 1/100-mm. and is converted to percent of elongation by a fixed table. In this way the points at which failures occur on identical panels, after various degrees of exposure, can be accurately measured, recorded and compared.

Decal Nameplates for All Products

The Meyercord Co., Chicago decalcomania manufacturer, is distributing an informative check-chart showing how to select and specify the right decalcomania nameplace for 16 different types of surfaces. Published in file folder form to hold subsequent data sheets to be distributed periodically, it also contains a check-list of 25 wartime uses for Meyercord decalcomania now used on 34 different types of combat equipment.

The chart illustrates actual decal



You may be satisfied with your present finishes

AM
FINE FINISHES SINCE 1898

BUT...

Do they have what it will take to speed production, cut costs and add sales appeal to your products when the scramble for civilian markets once again gets under way?

In the rush of your wartime job you may not have had the opportunity to plan ahead, to keep abreast of new developments or to test new and improved finishes. Now's the time to do it, and Marietta's development laboratories and trained technical service men will gladly help you with your present and future finishing formulations, applications and production procedures. Call or write

AMERICAN-MARIETTA COMPANY

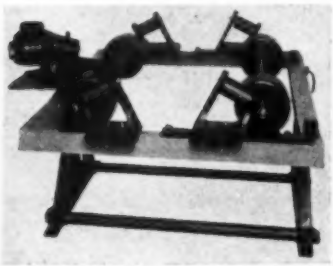
Marietta, Ohio Chicago, Illinois High Point, N. C.

nameplates and describes application methods, types and uses, as well as special features such as retention and shut-off fluorescent, non-specular, marproof and elasticized decals. Meyercord wartime research has developed or improved decalcomania to a point heretofore considered impossible, resulting in Decals that are resistant to acid, petroleum products, alcohol, abrasion, extreme heat and cold, humidity and moisture that can be applied to any known commercial surface, rough or smooth.

Product engineers, designers and manufacturers interested in new decalcomania developments for nameplates, trademarks, operating instructions wiring diagrams, etc., can obtain copies of the decal check-chart from The Meyercord Co., Dept. RT, 5323 W. Lake St., Chicago 44, Ill.

Cleans Steel Drums (Inside)

Here is a self-contained motor-driven mechanism (stationary or portable) for rotating steel drums in horizontal or tilted position to clean and rinse them with solvent or cleaner fluid. It is adjustable to take different size drums. The trunnion that carries the rollers, and which is shown in level position in the illustration, can be tilted two ways to allow the drum to be rotated while it is in tilted position, so that either the bottom end is down or the top end is down.



Rotates steel drum to clean their interiors with solvent or cleaning fluid.

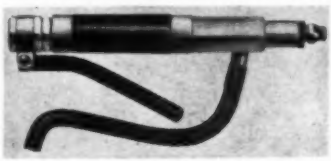
One set of rollers is driven, through a reduction gear, by a ¼-hp. motor which is small enough to take its power from an electric light socket or outlet.

This new machine is a product of The Vol-U-Meter Co., 75 Wilbury Place, Buffalo 16, N. Y. Another rotator cleaning machine in this firm's line takes care of jars, jugs and carboys.

Blow and Sunction Air-Liquid Gun

A new general-purpose gun for blowing compressed air or liquid, or for suction of air or liquid, is announced by the Lonn Mfg. Co., Inc., 131 E. New York St., Indianapolis 4, Ind.

Simplicity of construction, light weight and flexibility are among the features claimed for this "3-in-1" tool. There are only three working parts, which are easily and quickly taken apart for cleaning. This is important, because the gun does require cleaning after each day's work. No packing whatever is used, so there are no leaks. There are no springs, levers or push buttons. An improved flex handle



Blows or sucks air or liquid.

makes for easy operation on continuous blowing or suction jobs, and the Lonn internal trigger principle of operation gives easy, positive control of air volume. A slight pressure opens the valve smoothly and gradually.

Other features include an adjustable nozzle, which enables the operator to get any kind of spray he needs, and a special injector which concentrates and forces the air stream accurately across the intake valve, giving the gun

U. S. Army
Specification No. 3-181
Amendment No. 1
One-Coat Finishing System
over phosphate-heated or
solvent-cleaned steel

★ ★ ★

If you're making metal ammunition containers, landing mats, drums or the like, you'll welcome this brand new Egyptian finish ... Enamel ... Olive Drab ... Rust-Inhibitive.

Can be dipped, sprayed or roller-coated. Meets every specification requirement, and beyond that it embodies the famous "know-how" which is always a vital ingredient in every Egyptian Finish.

★ ★ ★

Special correspondence on finishing problems for war or post war products is invited.

Egyptian's new U. S. Government "Spec" Book—4th Edition—is ready. It's helpful and it's FREE. Send for your copy. Please address Dept. A-2.

THE EGYPTIAN LACQUER MANUFACTURING COMPANY
ROCKEFELLER CENTER, NEW YORK 20, N. Y.

EGYPTIAN
SUPERIOR FINISHES

exceptionally high nozzle volume. Results claimed for this construction and principle of operation are positive control of air volume delivery, with a consequent saving on air costs; also savings on maintenance costs.

The all-purpose gun is made in three sizes—¼, ⅜ and ½-in.—and 8-ft. of Neoprene fluid suction hose is supplied with each unit.

Solvent-Proof Clothing and Shields

For the protection of employees whose skin is allergic to or harmed in any way by paint solvents, cleaning fluids, oils, etc., flexible transparent garments are now available. They are made of a vinyl resin known as compar, which is impervious to sulphur-base cutting oils, kerosene, paint, lacquer, cleaning and degreasing compounds, and other organic solvents. This clothing is also unaffected by many of the inorganic solvents.

Workers who are susceptible to these agents can, if necessary, be encased from head to foot in these safety garments which include hoods, aprons, gloves, smocks, sleeve guards. Even shoes may be completely coated with solutions of this same resin. Persons formerly unable to work with oils and solvents, because of sensitivity, now can be assigned to hitherto impossible duties without danger to health.

The manufacturer of these garments is Resistoflex Corp., Belleville, New Jersey.

Transparent compar aprons, caps and sleeveguards combat industrial dermatoses by preventing worker's clothing and hair from becoming saturated with oils and organic solvents.

"Hytemp" Paint Stands Extreme Heat

"Hytemp" protective coating, a product of Geo. R. Mowat Co., 24 West 40th St., New York 18, N. Y., produces a coating on metal that resists temperatures up to 3,000° F. Also, it gives protection against acid, hot fumes, rust and corrosion.

"Hytemp" is applied by brush, spray or dipping. After it is applied, it is allowed to dry thoroughly at atmospheric temperatures and then it is subjected to flame or heat at approximately 1,000° F. for a few minutes, for the purpose of setting the material. When treated in this manner it becomes part of the surface to which it is applied, and is not affected by moisture or any drastic changes of temperature nor by various degrees of expansion and contraction.

This high-temperature protective coating is composed of a number of mineral substances of which chromic oxide is the base. It is chrome green in color.

Protective Skin Cream

Many workers are allergic to some resins, solvents, oils, cutting compounds, gases, acid fumes, paints, thinners, etc. If the skin is broken an irritation might develop. Scratching may then aggravate and spread the irritation.

DeFoe Finishing Co., one of Chicago's larger job finishing plants, had one job for which a phenolic coating

Since the days of "dope" for coating early airplane fabrics, Arco has provided the aviation industry with a complete range of paint products. From infra-red reflecting camouflage to finishes for ignition cables, the Arco Laboratories—home of paints for every industrial purpose—have kept pace with the needs of heavier-than-air flight.

Paints for Industry THE ARCO CO.
CLEVELAND, OHIO • LOS ANGELES, CALIF.

was specified. So many workers were allergic to this coating that the rate of absenteeism was crippling production.

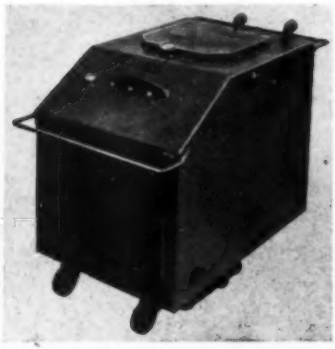
When these cases of dermatitis did not respond to ordinary treatment, Mr. DeFoe personally took a hand. He found a preparation that so effectively stopped the spread of dermatitis that he sent it to an independent laboratory for tests.

The laboratory reports were so enthusiastic that Mr. DeFoe acquired an interest in the patents and established DeFoe Laboratories, Inc., 3219 Armitage Ave., Chicago, Ill. The product is known as Industrial Skin-Glace.

Industrial Skin-Glace is applied to hands and other exposed skin areas before the work period. At the day's end, it is readily removed with warm water and soap. Not only is it an unusual preventive of skin irritations, but it helps to keep the skin clean and soft.

Portable Heating Tanks

One of the many special kinds of heating tanks now being built by the Youngstown Miller Co., Sandusky, Ohio, is shown in the accompanying illustration. This particular machine, Model 20, is portable and consists of a well insulated heating tank equipped with electric heaters—a motor and pump for circulating the contents, thermostats for maintaining the temperature within certain limits, complete with electric controls, valves all mounted on casters.



Portable tank electrically heated.

Although the illustration is of a portable job, most requirements of heating tanks are for stationary units and these are manufactured in a large range of sizes with or without mechanical agitation.

Pickle Bath Toners

The American Chemical Paint Co., Ambler, Penn., announces that its laboratories have developed a further aid for pickling baths — "ACP Pickling Bath Toner" for use with or without Rodine. (Rodine is an inhibitor which had previously been developed to control the pickling action to the removal of scale, and to prevent needless attack on clean metal.) The new Pickle Bath Toner fills a definite place in improving the finish of pickled metals and greatly reduces waste due to excessive dragout.

ACP Pickle Bath Toners are supplied in either powder or liquid form for use in either sulphuric or muriatic acid solutions, producing brighter and cleaner surfaces. The emulsifying action of Pickle Bath Toners reduces the contamination of the pickle solution by oil, admirably adapting them to the pickling of work slightly oily and, in conjunction with Rodine, for the pickling of alloy steels that are difficult to pickle.

The company declares that any sulphuric or muriatic pickle solution will be improved by the addition of ACP Pickle Bath Toner. Generally the powdered forms are recommended for use in sulphuric acid and the liquid forms for muriatic acid solutions.

Heralded as licking the biggest gremlin in Infra-red heat lamp use, Birdseye Division of Wabash Appliance Corp., Brooklyn, N. Y., announces its new Superlock construction for permanently locking base and bulb against the terrific temperatures of infra-red tunnel use. The new Superlock construction of the Birdseye lamp uses no cement or strap. A ceramic heat reflector disc replaces the mica disc formerly used.

Perfection in—

WRINKLE FINISH!

FREE FROM CHINA WOOD OIL

To conform with the Government regulation prohibiting the use of china wood oil, and to maintain the splendid reputation of Yarnall Wrinkle Finish—the Yarnall laboratories, after extensive research and field tests developed a new Wrinkle—one whose qualities stand up to every test—and during the past year has been used by some of the largest wrinkle finish users.

IF YOU WANT—

SURFACE PROTECTION
RESISTANCE TO THE ELEMENTS
FREEDOM FROM GLARE
EYE APPEAL
COVER SURFACE IMPERFECTIONS
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USE THE NEW—

YARNALL WRINKLE FINISH

Write for complete information

YARNALL PAINT CO.

Industrial Division

PHILADELPHIA . . . . PENNSYLVANIA

Pebble Finish for Machine Tools

Spurred by one of the greatest order backlogs in the history of the machine-tool industry, the research laboratories of The Sherwin-Williams Co., producers of industrial coating materials, have developed a new "pebble" finish for machine-tool surfaces, which not only uses far less finishing materials but can be applied in 1/3 to ½ less time.

Called a "pebble" finish because of its physical appearance, this new method of protecting machine-tool surfaces provides a successful solution to the problem of how to "dress up" a machine surface without fillers, sanding and numerous coats of sealing paint. WPB officials, in an effort to boost tool output, have prohibited the use of fillers, sealers and similar finishing materials, have also restricted the number of coats of paint that could be applied.

With the new method, however, it is now possible to finish a machine tool in three operations instead of seven, as formerly required. The "pebble" finish effectively hides the scratches, grinding scars and other surface defects of the casting. Perhaps this successful application of "pebble" finishing will help accelerate postwar planning for improved industrial finishes.

Metal-Cleaning Compound Has Unusual Merits

Developed to meet critical production demands for preventing rust on steel and for securing improved adhesion of such organic finishes as paint, lacquer, etc., an acid-type two-function detergent, heretofore restricted to war plants, has now been released for use in all metal-working plants, by the Technical Research Laboratories of Oakite Products, Inc., New York 6, N. Y.

Known as Oakite Compound No. 86, this new development is reported to remove light spinning compounds, drawing lubricants, machining oils, finger marks and shop dirt from steel parts. Beyond eliminating the need of preliminary alkaline degreasing often previously required in preparing steel for organic finishing, it also "conditions" the work in the same operation, by importing to surfaces a microscopic crystalline coating. This coating performs the dual function of providing the basis metal for a firm bonding of the subsequent paint coat and for resisting rusting of parts between operations.

Successfully used by many leading war plants, this cleaning and conditioning compound has been utilized to accelerate the production and expedite the finishing of shell cases, bombs, "blitz" cans, automotive and aviation parts, electrical and communication equipment, and many other war supplies. It is also said to have a wide range of application on peace-time products.

Free Service Report, giving further details, is available on request to Oakite Products, Inc., 32F Thames St., New York 6, N. Y.

Gilbert Spruance Dies

Mr. Gilbert Spruance, well known in the paint industry as founder and President of the Gilbert Spruance Co., passed away at his home in Philadelphia on New Year's day after a heart attack. He was 69 years old and had been in delicate health during the past several years.

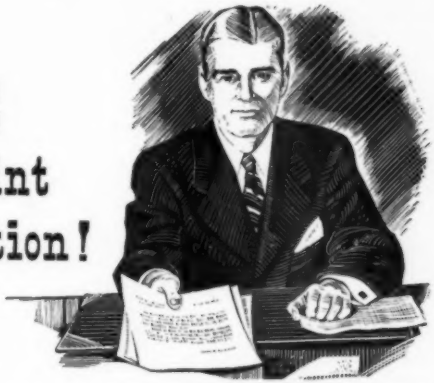
He founded the Gilbert Spruance Co. in 1906. During his life it was his principle and work as well as his hobby. The business grew steadily and in 1913 it was incorporated. The plant is located at Richmond & Tioga Sts., Philadelphia, Penna.

Mr. Spruance was active in democratic political circles in Philadelphia. Mr. Spruance is survived by his wife, daughter and four grandchildren.

Harry Ault Returns to American-Marietta Co.

Harry Ault, who was Advertising Manager of the American-Marietta Co. (Chicago 11, Ill.), several years ago, has returned to assume the post of Sales Promotion Manager. Mr. Ault, formerly with the Lehon Co., replaces Bob Ornberg, who has been inducted into the U. S. Army.

NAME Your Paint Specification!



Berry Brothers welcomes the emphasis which government specifications place on paint quality, and is now producing finishing materials for the Air Corps, Navy, Bureau of Ships, Maritime Commission, Engineers' Corps, Chemical Warfare and T.A.C. ¶ All materials are carefully formulated to meet government specifications fully, with a generous margin of quality and performance beyond minimum specification requirements. In other words, Berry Brothers' Wartime Finishes are made to the high side, not the low side of the specification. ¶ Berry Brothers' Complete Paint Service also assists you in fitting such materials into your existing facilities and methods, to insure maximum production. ¶ Berry Brothers' Complete Paint Service provides the practical "know-how" which carefully analyzes your needs and accepts responsibility for keeping your finishing methods up-to-date and your results uniform. ¶ Let us tell you more about this complete paint service in action.

● ***See our catalog in Sweet's Product Design File***

BERRY BROTHERS, Inc.

Quality Finishes Since 1858

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Booklets Catalogs Circulars

Protection Against Skin Infection

An article or report on the above subject, covering eight typewritten pages, has been prepared by Claudius Neilsen, Research and Consulting Chemist of Nielco Laboratories, 19720 Florence Road, Detroit 19, Mich. Concerns interested can obtain a copy by writing Mr. Nielson.

Micromax pH Recorders

Wherever it is important for operators of industrial processes, such as neutralization, precipitation, corrosion-prevention, etc., to be able to "see" pH at a glance, or to refer to a continuous pH record drawn on a handy, easy-to-file chart, a new catalog issued by Leeds & Northrup Co. should be of interest.

For a copy of Catalog N-96(1), "Micromax pH Recorders," write to Leeds & Northrup Co., 4934 Stenton Ave., Philadelphia 44, Penna.

Fire-Retardant Paints

Zinc Borate 3167 Fire-Retardant is part of the title of a new 16-page booklet that reveals practical information about fire-retardant and mildew-resistant paints.

War needs have forced to the forefront the problem of supplying better fire resistance to materials. Zinc Borate-3167 has been, and is being, used in tonnage lots in a wide variety of war applications where the combination of flame damping, afterglow depressing and weather, water and mildew resistance is required.

Indicated postwar uses should include the "fireproofing" of such products as building materials, paints, floor coverings, work clothes, aprons and gloves, canvas, tarpaulins, life jackets, life-boat covers, awnings, canopies, draperies, upholstery, electric cable insulation, window-shade cloth, wall boards, wall paper, rubber goods, and perhaps scores of other items.

Free copies of this timely and valuable reference booklet can be obtained from The New Jersey Zinc Co., 160 Front St., New York 7, N. Y.

Amercoat Plastic Coatings

Information about a line of new corrosion - proof, non - contaminating clear and pigmented coatings, is attractively presented in a bulletin that has 16 pages 8½x11-in., bound inside glossy black covers. Quoting from the introductory paragraph:

"Amercoat is not a paint, although its solutions are applied by brush and paint spray apparatus. It is an entirely new type of surface covering composed of thermoplastic resins. It adheres tightly to steel and concrete and produces an inert, smooth surface consisting of multiple coats; it forms a tough, durable, impermeable finish; is hard enough to withstand considerable abrasion, yet plastic enough not to check, crack or fracture when subjected to vibration and moderate expansion and contraction; dries by evaporation of its solvents; and makes an inert coating having the same properties as the thermoplastic resins of which it is composed. A sharp hammer blow will dent but not shatter it."

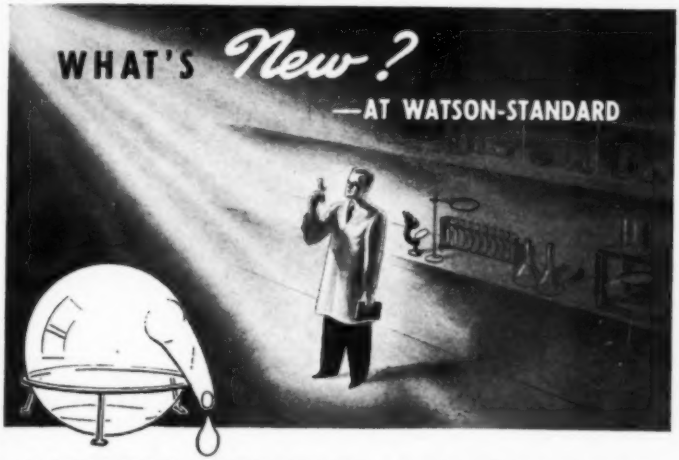
For a free copy of this informative bulletin, write, telephone or wire American Pipe and Construction Co., Box 3428, Terminal Annex Post Office, Los Angeles, Calif.

Postwar Planning Surveys Free

Basic steps involved in developing a practical postwar planning program are summarized in a 6-page folder, "Some A B C's of Postwar Planning," prepared by the Policyholders Service Bureau of the Metropolitan Life Insurance Co. This study, intended as an outline of principles on which to base a postwar planning program, briefly discusses the logical steps.

A more comprehensive treatise on this subject is contained in the report, "Planning for Postwar Operations," also issued by the Metropolitan. This survey is concerned with practical methods of organizing and conducting postwar activities.

A discussion of the specific methods of approach to be used in the development of a postwar planning program,



INSULATING VARNISH

A typical example of Watson-Standard creative research is a new formula for Insulating Varnish, developed in response to a Government Department's request. "V-2315", as the new formula is called, makes use of non-critical materials, has *heat endurance* and high *dielectric strength*, and is resistant to water, acids and alkali. It is one of a very few such products accepted by the Department as meeting its extremely high standards. Watson-Standard Laboratories are constantly engaged in research designed to develop the answers to your everyday problems. Inquiries are welcomed.

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TOUGH JOB HEADQUARTERS

Rx Prescription Finishes

Give us your metal coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

classified as the cooperative approach and the individual, or company approach, is contained in the report.

The final section is devoted to a completely integrated case example in which the postwar planning program of a well-known manufacturing company is outlined.

Copies of either or both of these publications are available to executives who address the Bureau on their business stationery. Address: Policyholders Service Bureau, Metropolitan Life Insurance Co., One Madison Ave., New York 10, N. Y.

Wire Cloth Book

"Industrial Wire Cloth, Engineering Data and Price List," a new technical reference book, is offered without obligation to industrial users of wire mesh and cloth, by The C. O. Jelliff Mfg. Corp., Southport, Conn.

This pocket-sized booklet, 96 pages, explains simplified ordering procedure facilitating shipments, explanations of different types of weaves in wire cloth, metals and alloys available, and laboratory and research facilities. Tabular material lists complete data on wire sizes, gauges, standard weights for each size of diameter for various metals and alloys, and methods of calculating weights of same.

How to Minimize Risk in Product Development

Decision as to whether a company should or should not bring out certain new products after the war obviously should be based on factual information. However, unless a company establishes this as an inviolable rule, important product policies may be determined by personal opinion, guess, or inadequate or inaccurate information.

Experience has proved that the risk which is considered a normal part of product development can be greatly minimized by proper use of technical surveys. Here are typical questions which technical surveys can answer for your company:

1) "Are there any new uses or fields for our present products?"

2) "What are the advantages and disadvantages of the various makes of a product now on the market, which we consider bringing out postwar?"

3) "What features will insure maximum salability for an entirely new product which we consider bringing out postwar?"

(The above is a digest of a bulletin on Technical Surveys recently published by Designers For Industry, Inc., Cleveland 13, Ohio. A request addressed to them will bring a copy without charge.)

Visualizer Shows How to Use Decals on Trucks

The Meyercord Co., manufacturer of decal truck lettering and pictorials is distributing an informative layout and copy Visualizer to aid truck owners in the maximum utilization of the free advertising space on their motor fleets.

In addition to selected illustrations of well decorated truck bodies, ranging from panel deliveries to cross country vans and tank trucks, the Visualizer includes skeleton outline diagrams of many body types for experimental lettering and designing by truck owners of their maintenance men.

Instructions for specifying the right decal for the right location on the truck, whether top, sides, rear, cab door or visors, are but a part of the information contained in the chart. Suggestions on truck decorating, scientific color schemes, hints on care of decal decorations, together with data on decal weather-tests and durability, are included to help the truck operator maintain well groomed trucks and cash in on thousands of miles of advertising value per year. Copies of the Visualizer can be obtained from The Meyercord Co., Dept. RR, 5323 W. Lake St., Chicago (44), Ill.

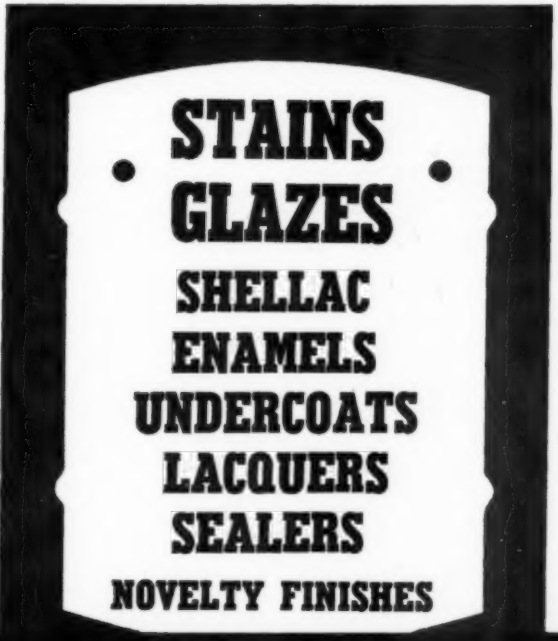
Executive Problems Solved

Pioneer Engineering & Mfg. Co., 19669 John R St., Detroit 3, Mich., has released an attractive brochure titled "Solutions to some Executive Problems." It poses many questions which will stimulate men's thinking in new channels and will give executives valuable suggestions in dealing with the approaching production problems. Copies will be sent to any executive if request is made on company stationery.

American Tumbl-Spray Metal Washing Machine

Bulletin No. 9 describing the American Tumbl-Spray metal-washing machine, manufactured by American Foundry Equipment Co., 555 S. Byrkit St., Mishawaka, Ind., has been completely revised to incorporate recent design improvements of the machine.

The Tumbl-Spray metal-washing machine is designed for removing chips, dirt, grease and oil from machine parts, stampings, screw machine products, etc. By means of its special endless tumbling conveyor, the Tumbl-Spray achieves complete exposure of work to the cleaning action of the high pressure sprays.



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Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

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Editorial

Use Paper Sparingly; Salvage Used Paper

The present shortage of paper for all purposes is of great concern to every one of us in the United States. It is real and it is serious. You are urged to do your part in conserving paper, and to encourage others to do so too.

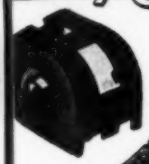
1) Use paper only when it is necessary. 2) Use smaller sizes and thinner paper whenever possible. 3) Avoid all wastage or destruction of new and used paper or paper products. 4) Salvage and encourage others to salvage used paper of all kinds. In other words, save and store used paper, keep it dry and clean, and when a reasonable quantity is accumulated, see that it is collected or moved to some firm or organization that will forward it back to the mills where it can be reprocessed and manufactured into new useful paper and paper products.

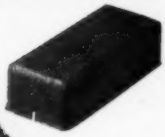
If you are receiving any publication that you have no use for, please notify the publisher immediately; or, if through some error somewhere, you are receiving more than the one copy you do want, notify the publisher promptly.

The printing industry cautions all users of printing that although they may seem to be able to get paper without difficulty at the present time, this may be purely a temporary situation and that *the waste of paper now will result in a more serious shortage a few months later.* If, on the other hand, all buyers make at least a 25% tonnage reduction through the use of lighter weight paper, smaller forms and other means, there will be enough paper to go around.

There is hardly a business in the United States which would not be seriously handicapped by restrictions on the use of paper. This is a problem that cuts across all business and trade lines. It is just as important to any manufacturer or business or individual as it is to the printing industry, and we hope that you will go all out to help in this vitally needed conservation effort.

Only Extra Performance wins!





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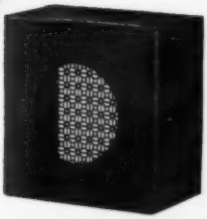
- It may be baked with infra-red lamps.
- It bakes hard in very little time.
- It has great mileage in terms of coverage.
- It covers rough metal surfaces in one coat.
- Try it . . . . Use it . . . . Request a sample.

Submit Your Finishing Problems to the ALAKA TECHNICAL DEPARTMENT

- New, Complete, Up to the Minute Catalogue of U. S. Government Specification Finishes

Send for your copy



LACQUER & CHEMICAL CORPORATION

714-220 FORTIETH STREET • BROOKLYN 32, N. Y.

New Finishes Demanded and Available When—

★ It is our feeling that directly after the war there will be an immediate demand for a great many finishes to be used during the early part of the reconstruction period. Many of these finishes will have to be made with materials now available. Such finishes nevertheless will be of a quality at least the equivalent of prewar finishes. Gradually, as new materials are released for civilian use, new finishes will be made to fulfill the requirements of industry and the public. As a matter of fact, some conversion from a wartime to a peacetime economy will start before the war is over.

A large number of new intermediates for the manufacture of synthetic resins will be available. There will be new polyhydric alcohols and polybasic acids for better alkyd resins; new treated and chemically-altered drying oils, and a large number of unsaturated compounds that can be used as a base for building different and better synthetic resins. These resins will give improved finishes which will gradually become an integral part of the protective-coatings business as the period of transition from war to peace progresses.

Besides new synthetics, other materials that go into protective coatings will also make progress such as pigments, thinners, driers, oxidation inhibitors, mildew inhibitors, emulsifying agents and a great many others.

Hand in hand with new finishes, new and improved materials for fabrication will be available to the general public. Two general groups seem to stand out at this time; these are light metal alloys and plastics. As these become available, decorative and protective coatings will be adapted to their finishing.

It is our feeling that any company that is not doing a reasonable amount of thinking and work on postwar requirements is contributing towards the loss of the Victory after the war is won. This does not involve a neglect of present or future war commitments, but can and is being correlated with the present war work which will be converted to civilian use after the war. We feel that we are doing our part towards making a better world by developing the technical and practical information and experience to meet the new problems that will arise from new surfaces to finish and new finishes to apply. . . .—VITA-VAR CORP. (Paint Engineers).

Decals and Graining To Be Used Extensively

★ According to my ideas, the use of decals and graining in the manufacture of postwar furniture, radio cabinets, etc., will be greater than ever before. There probably is quite a stock of face veneers in the warehouses of plywood and furniture manufacturers. They will be very high in price, and even at that, they will be used up before very much in the way of new stock can be produced.

The material used in decals and for graining will be plentiful and

---

★ Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

SEA-LAC FACTS

Featuring SEA-LAC Finishes and Their Application

LACQUERS ENAMELS SYNTHETICS

SEA-LAC

Finishes to Government Specifications and SEA-LAC Recommendations

Vehicles for Luminescent and Fluorescent Finishes

POST-WAR?

Used on Metal • Paper • Wood • Fabrics

Luminescent pigments call for many special properties in a vehicle. Their sensitivity to moisture demands extreme water resistance. Proper activation requires excellent light transmission. The need for applying heavy coats calls for maximum flexibility. Many applications also demand good outside durability.

Sea-Lac vehicles have been developed to fill all these requirements PLUS excellent pigment vehicle stability, no gelling in 6 months; quick air dry, no heat curling; compatibility and adhesion over a wide range of base materials.

Developed at the Duralac Laboratories for specific war purposes, it will be one of the leading post war finishes. It is easily applied, showing an exceptional saving in time and labor.

Limited sample quantities available so far as government regulations will permit.

DURALAC CHEMICAL CORPORATION

LISTER AVENUE, NEWARK 5, N. J.

readily available. Decals and graining permit the use of woods that make good strong furniture, but lack an attractive figure. Also some of this unfigured wood has many dark streaks, as in the case of poplar, tupelo and sap gum. These woods are now being used to make some fairly good looking furniture — by special treatment in finishing—in place of woods that are not available at this time.

Decals and graining can be applied, in most cases, to flat panels which can be bent, routed, shaped, etc., to fit into frames. This gives clean surfaces for gluing in case of side panels, inset tops, etc. In case of graining, a sealer coat over the graining is necessary to protect the printed figure when handling. Decals carry their paper backing through staining, filling, and sealing operations done on parts that cannot be finished that far before assembly. Decals, of course, can be applied to most any shape before or after complete assembly.—O. R. MYERS.

Conveyorization Needed for Production Finishing

★ The use of conveyors in product cleaning, painting and paint drying operations has become almost as necessary as the finishing materials themselves. Installation of conveyors requires careful study for placing and timing operations to be performed, drying time between coats, and allowing a certain amount of room for additional operations at all points. This is all based on the maximum of production that could be expected.

Drying space should not be stinted. If finish coats cannot be dried in the recommended length of time you have a bottleneck, in case of a rush—or a lot of trouble, if you take a chance on a shorter drying period.

After a conveyor system is carefully figured out and installed, the finishing foreman can see at a glance how his production is running at any time; also, whether some trouble has developed and where, by the number of pieces coming off the conveyor.

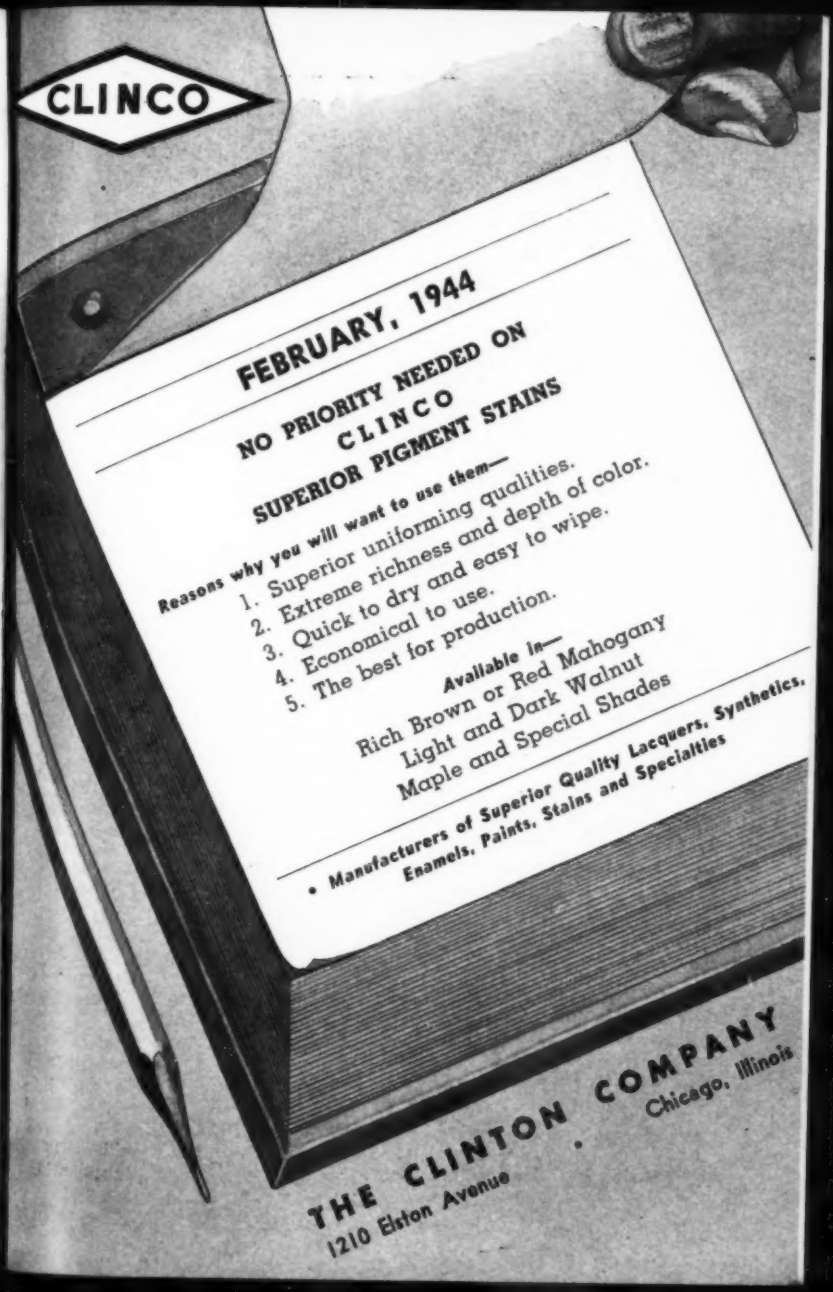
For successful continuous operation, conveyor systems require relief operators at different points. A central supply system for finishing materials is also recommended for smooth operations of a conveyor system. Conveyors with overhead chain roller, or dollies traveling on the floor in a channel track, are best adapted for use in finishing rooms.—O. R. MYERS.

Adhesion of Finishes on Wood Furniture

★ Most finishes on wood furniture fail by loss of adhesion. In fact, the primary cause of finish failure, on most industrial products, is poor bonding of the finish to the surface. This bond is the most critical point in the entire finishing system.

On wood furniture poor adhesion results in embrittlement and lack of resistance to scratching and marring. Checking and cracking may occur as a result of loss of adhesion.

1) A very important cause of poor adhesion is short, brittle undercoats. Sealers loaded with sanding agents to make them sand easily and quickly may cause poor adhesion. The highest quality of floor varnish applied over a cheap, short gloss varnish will be no tougher than the gloss varnish. The same floor varnish applied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NO PRIORITY NEEDED ON
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SUPERIOR PIGMENT STAINS
Reasons why you will want to use them—
1. Superior uniforming qualities.
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Available in—
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Chicago, Illinois

over itself as a foundation coat will exhibit much greater toughness and adhesion. Therefore, point one is to avoid brittle undercoats.

2) Use materials that in themselves are tough, elastic and adhesive. The only way to test for these qualities is to apply one or two coats directly on the surface to be coated, without any intermediate coats. The resistance to scratching and separation from the surface can be evaluated with a knife or the finger nail.

3) Use materials that have good aging qualities. Some materials appear tough, elastic and adhesive when the films are a few days old; but they may become brittle in a few weeks. The only way to test for this quality is to observe the films over a period of months or even a year or more. Some materials will retain their toughness and adhesion well; others lose their adhesion and cohesion quickly.

In short, poor adhesion may be inherent in the system, or it may develop with age. The use of high quality, tough materials, with good aging qualities, is the only way to avoid adhesion troubles. Careful testing and observation are required.—ROLLIN H. WAMPLER.

Random Comment on the Industrial Scene

BY LAWRENCE H. SINGER

Victory Model Furniture—A sad commentary of victory model furniture was provided by a visit to the annual exhibit of the New York Furniture Exchange in January.

It was generally agreed that the public has developed a firm spirit of resistance to the "ersatz" merchandise, and prefers to hold on to prewar pieces rather than invest in stop-gap products. One exception to this trend is understood to be juvenile furniture, in which a wild consumer scramble is taking place throughout the country.

Hundreds of retail stores are believed to have considerable inventories of victory merchandise, and much of it may eventually go at mark-down prices.

A noteworthy sidelight is provided by the example of several important New York stores. They advertised clearance sales of some toy and novelty stocks the week *before Christmas*, realizing that such items could not be offered again in 1944.

* * *

Paint From the Air—Chrysler's pioneering process for recovering waste paint from the air is being adopted by dozens of other war plants on arrangement with the motor company.

In case you have not heard about this innovation, the technique often results in the recovery of more than six gallons of excellent paint from every ten gallons of waste. The basic materials are collected from the paint-filled mists which normally would be exhausted from the factory stacks.

Chrysler engineers started work on this recovery procedure in a small way ten years ago, and today they are running a $100,000 reclaiming plant.

* * *

Powder Metallurgy—We have been reading an interesting little booklet on alloy powders, prepared by the Unexcelled Mfg. Co. of New York. According to David A. Buckley of this firm, new applications

how's YOUR quota?

YOUR 4th WAR LOAN QUOTA

IF you haven't already got a smooth running, hard hitting War Loan Organization at work in your plant, there's not a minute to lose.

To meet your plant's quota means that you'll have to hold your present Pay-Roll Deduction Plan payments at their all-time high—plus such additional amount as your local War Finance Committee has assigned to you. In most cases this will mean the sale of *at least* one $100 bond per worker. It means having a fast-cracking sales organization, geared to reach personally and effectively every individual in your plant. And it means hammering right along until you've reached a 10% record in those *extra* $100—or better—bonds!

So common are the cases of two, three, or even more, wage-earners in a single family, that you'll do well to forget having ever heard of '10%' as a reasonable investment. Why, for thousands of these 'multiple-income' families 10% or 15% represents but a paltry fraction of an investment which should be running at 25%, 50%, or more!

LET'S ALL BACK THE ATTACK

This Space Contributed to Victory by

INDUSTRIAL FINISHING

This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council

should bring postwar sales in the industry to at least 200,000,000-lbs. annually, a six-fold increase over prewar volume.

The automobile companies alone, who formerly used about 2-lbs. of powder metals in each car, now plan to use over 50-lbs. per unit. Plastics processors are also contemplating the spraying of molded articles with corrosive-resistant metals.

* * *

Jet Propulsion—The recent allied announcement of the successful development of a jet-propulsion fighter plane has been generally accepted as a turning point in aviation history.

Although details are a carefully guarded secret, the new device is a refinement of the rocket principle, which has been developed over a long period of years by such pioneers as Professor R. H. Goddard of Clark University.

As far back as 1928, Fritz von Opel drove a rocket-powered automobile in Germany, developing a speed of a mile per minute.

Orville Wright, co-inventor of the first heavier-than-air plane, however, believes that widespread use of the jet propulsion plane is a long way off. He recently said that conventional airplanes could be "cleaned up" aerodynamically, eliminatting resistance and thus enabling them to travel at higher speeds with lighter fuel loads.

* * *

Postwar Autos — Striking out firmly at the designers of tomorrow's "dream" autos, Edgar C. De Smet, executive engineer for Willys-Overland Inc., recently told the Society of Automotive Engineers that such esthesis offer "beautiful pictures at fanciful prices."

Mr. De Smet contends that many stylists bring forth their tear-drop patterns without regard to production problems or costs. "The real creators," he contends, "are the scientists who, by tedious experimentation and research, discover how to harness the forces of nature and how to convert our basic elements into commercial products."

* * *

Aviation Prospects — The most comprehensive survey yet made of the postwar market for planes has been completed by E. E. Lathrop of the Sperry Gyroscope Co.

In summarizing this helpful analysis, *Aviation Magazine* reports that about 37,700 planes will be needed in the two years following final victory over Japan. That sounds like a good many planes, until we remember that the total represents less than four months' output at our current rate of production.

One of the surprising items in this interesting market study is the small total allotted to personal planes—9500 units in all, including 2500 helicopters. Mr. Lathrop's conclusion seems to be that more time will be required to develop any substantial demand for family or "flivver" airplanes.

* * *

Weight Saving—J. G. Weinmann, of the Technical Service Division, Reichhold Chemicals Inc., Brooklyn, N.Y., has given this department some newsworthy data on the weight-saving effected by using yellow zinc chromate primer in place of red lead on ships.

According to our correspondent, about 2000 gallons of primer are used in painting a C-2 cargo boat of 10,000 tons gross weight. A saving of approximately 10,700-lbs. can be realized by the use of the yellow coating.

"I SEEN MY DUTY AND I DONE IT"

AIRPLANES
GUN STOCKS
BOMB SIGHT BOXES
TOOL CHESTS
MARINE PARTITIONS
RADIO INDUSTRY, ETC.
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INSTRUMENT BOXES

WITH THESE WORDS Major James H. Howard, USAAF, tried to pass off his heroic action when he and his P-51 Mustang tore into thirty Nazi planes and shot down six of them.

The crews of Flying Fortresses, while over Germany on a mission, saw Major Howard, a former flying tiger, attack the thirty Nazis alone and score the incredible record of six down in one encounter. They called Major Howard "a one-man airforce" and claim that he broke up the Nazi attack on the fortresses.

BUY BONDS—Support the 4th War Loan Drive and you support men like Major Howard.

Listed here are a few of the war products now being coated with our materials. Phone, wire or write and let one of our finishing experts help you "keep production rolling."

THERE'S NO TIME TO LOSE—THERE'S JUST TIME TO WIN!

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CLAREMONT WASTE MFG. CO.
CLAREMONT, N. H.

The country's largest manufacturers of Flocks

L. A. Melsheimer, director of Technical Service for the United Color and Pigment Co., Newark, N.J., adds this bit of information: Red lead primer made up to Maritime Commission specifications, weighs 17¼-lbs. per gallon, whereas yellow zinc chromate primer formulated for the same agency tips the scales at only 11⅛-lbs. per gallon.

* * *

Postwar Views—The automobile industry should be permitted to begin planning at once to build a small quantity of new cars on the day the European phase of the war is over, in the opinion of Ward M. Canaday, president of Willys-Overland.

"If we leave the job of conversion until the last shot is fired," he warns, "we are certain to create a sudden economic dislocation as well as a serious breakdown in our civilian transportation."

Mr. Canaday maintains that blueprinting of conversion plans must await the government's announcement of preparations for releasing materials, equipment and manpower. And he stresses the point that clarification of war contract termination policy is of the utmost urgency.

* * *

Wood's Bright Future—The wood industry, despite its ancient heritage, has developed fewer technological advances than any other important field, in the opinion of Professor Robert W. Hess of Yale University.

However, he has high hopes for the postwar progress of plywoods. Professor Hess expects to see fireproofed buildings built of wood, and molded plywood products of various kinds. Other experts have recently predicted that autos and railroad cars may one day be built of versatile resin-impregnated molded plywood.

* * *

The Way to Peace—"Testimony To The Future," a brief but brilliant publication written by Dr. A. R. Olpin for the National Association of Manufacturers, reminds us that industrial research is making an important contribution to peace.

Pointing out the development of synthetic oil, rubber, textiles, spices and dyes, Dr. Olpin writes: "The laboratory has become a better source of wealth than the battlefield. As the world comes to realize this fact, one of the major excuses for war advanced by the war lords of aggressive nations will lose its weight."

* * *

More On Plastics—The Bakelite Corp. has developed a new method for molding synthetic resins, which has been widely publicized in re-

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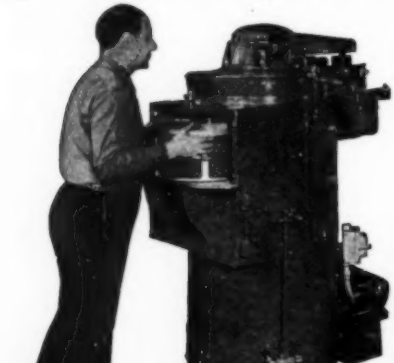

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cent weeks. The process embodies the use of electrostatic heating of plastics before molding. This technique generates heat uniformly within the material by a high-frequency electric field.

Production costs of plastics have been drastically cut through this procedure, and the requisite time for molding is reduced from a matter of minutes to mere seconds. In addition the production capacity of the molds is increased ten-fold.

* * *

Using Light Metals—We recommend to production men interested in the prospective use of light metals, "Designing With Magnesium," an exhaustive survey published by the American Magnesium Corp. of Pittsburgh.

Numerous reasons for the vast development of the industry are cited—rising demand for weight saving, greatly improved tensile strength, and the corrosion resistance of today's magnesium. The report adds that the material cost is constantly being lowered, and is now reaching a price comparable to other metals on an equal volume basis.

* * *

Radio Tickets—Broadcast tickets are still available to readers contemplating a visit to New York. Leading sponsors are cooperating in the program for this service. Drop a line to:

Lawrence H. Singer
130 West 86 Street
New York 24, N. Y.

And here are our recommendations on recently opened Broadway shows: "Over Twenty One," a hilarious comedy starring Ruth Gordon; "Carmen Jones," the all-negro opera, and "Voice of the Turtle," the season's most delightful play, starring Margaret Sullavan.

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Plasticizers for Cellulose Acetate—Nitro Cellulose —Ethyl Cellulose and other film-forming materials.

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5 Gallon
BLUE
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Restores Paints, Lacquers, Enamel Products and Pigment Primers, to original consistency in 3 to 10 minutes without opening the can. Available for Round or Square 5-gallon cans. Explosion-proof electrical equipment if desired. Also other units from ¼-pint to 50-gallon drum capacity available. Originators of Paint Rejuvenating equipment — ten years—thousands of satisfied users.

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Prevent Accidents in Your Finishing Room

★ One of the greatest hindrances to our much needed war production is industrial worker accidents. Due to our accelerated production and because of the necessity of hiring and training so many new workers, our industrial man-hour loss for 1943 will be by far the largest in history. Basing this on estimates of previous years, the 1943 man-hour loss in U. S. industrial plants will reach the enormous total of 800,000,000.

Just imagine how many bombers, fighters, tanks, guns, battleships, etc., could have been built with those lost man-hours. Of course, the finishing room will contribute its share of these accidents. Many of them could be prevented if the proper precautions were taken.

Perhaps one of the greatest causes of accidents in the finishing room is an unclean floor—in other words, a floor that is not kept clean of rubbish, such as rags, sandpaper, nails, spilled finishing materials, etc. All paint room and finishing room floors should be kept clean at all times.

Freshly oiled wood floors cause a lot of falls, and sometimes serious accidents. They should be oiled over the weekend or when no one is working. . . . In this way the oil has time to soak into the wood before production workers are walking on it again.

Faulty gauges and worn or broken air regulators often allow too much air to accumulate in pressure tanks and material drums. This can cause a very serious accident. Always make sure that your gauges and regulators are kept in good condition to prevent accidents of this nature.

Some few months ago a large

BURDETT "INFRA-RED" BURNERS

(The Original)

INCREASE PRODUCTION 89% with 65% less oven capacity

Hayes Mfg. Co., of Grand Rapids, reduced paint drying time from 90 minutes to 10 minutes on all types of work by converting their indirect-fired oven to employ Burdett "Infra-Red Principle" Gas Burners. This conversion cut 100 feet from the original 180-foot length of their oven, releasing valuable floor space for other production.

Investigate these time, space, labor and fuel savings. Profit by them.

Write for 16-page illustrated booklet.

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BURDETT MANUFACTURING CO.

Infra Red Gas Burners

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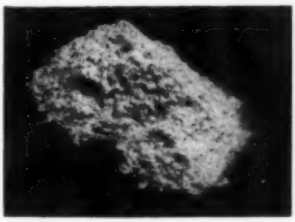

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Used in airplane, auto and numerous other industries for—

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Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced:

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Request Samples and Prices

RAYON PROCESSING CO. of R.I. INC. 55 TREMONT STREET CENTRAL FALLS, R. I.

finishing-material manufacturing plant was burned down due to static electricity in the body of one of its employees. As this man was pouring material from a metal bucket into a mixer, a spark from his body set the mixture on fire, burning him to death and destroying the plant.

Many times disastrous fires are caused directly or indirectly by dirty spray booths. All booths should be kept clean and coated inside with a fireproof detergent. All lighting switches, motors, etc., used in the finishing room, should be explosion-proof, as a fire in the finishing room, where so much inflammable material is present, nearly always means bad burns and sometimes death to workers—and, of course, the loss of the plant is always possible.

Be sure that you know the type of chemicals you are mixing, as some types of finishing or cleaning materials, due to their formulation, may cause a serious explosion if mixed with certain other types of material.

Some workmen suffer serious strains, rupture, etc., from the improper lifting of drums. Be sure you know how to lift a drum before you attempt it.

There are many other causes of accidents in the finishing room. One of these is caused by splinters on wood surfaces being finished. All sharp edges on pieces should be sanded with a sand block before the piece leaves the cabinet assembly room. This will prevent splinters from sticking into the hands of workers in the finishing room.

The proper thing for the worker to do when he is injured (no matter how small the injury) is to report his accident to his foreman at once, so that the foreman may take him to the first-aid room or, if necessary, to the hospital. This will prevent serious complications such as infections from setting up. —H. W. CHESTER.

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MAIN OFFICE and LABORATORY
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Letters from I. F. Readers

(Continued from page 8)

was at one time made or sold by a company under the company name of Qualatone Products Co. The material was used for repairing damaged wood-finished surfaces. If you can help us locate the manufacturer or distributor of this material, we will appreciate it very much.—L. Co. (Office Furniture).

It's Qualatone Products, Inc., 21 Gay St., New York.—ED.

A. R. Chapman Is Elected Pres't Gilbert Spruance Co.

At a meeting of the stockholders of the Gilbert Spruance Co., Mr. A. R. Chapman, formerly superintendent, was elected president to succeed Mr. Gilbert Spruance, founder and former president, who died on January 1, 1944.

The other officers who were elected at this meeting are Mr. James B. Ball, vice-president; Mr. E. F. Cox, secretary and treasurer, and Mrs. Betty S. Baggs, assistant secretary. The newly elected officers, with the exception of Mrs. Baggs, have been associated with the Gilbert Spruance Co. for almost two decades.

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Let us manufacture your photographic screens. Process colors and steel cloth in stock.

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Manufacturer of Water Wash and Dry Type Paint Spray Booths is seeking aggressive local sales organizations or individuals handling kindred non-competing equipment. Contacts with finishers and finishing departments of Industrial, automotive and aircraft companies would be preferable. Address IF-969, care Industrial Finishing.

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With nationally known manufacturer whose products used 100% by war industry now; equal peacetime opportunity. Salesman with industrial or automotive experience desired. Product closely allied with paints and their application. Established territories in practically every part of the country available for capable representative. Position pays salary, expenses, and bonus. Automobile required; state model. Include draft status, age and full particulars. Address IF-961, care Industrial Finishing.

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Four "Progressive" gun type spot welders with time and pressure controls. Two with 5-inch gap frames, two with 15-inch gap frames. Transformers: 220-volt, 3-phase, 60-cycle, one 50 K.V.A., three 75 K.V.A. Transformers mounted on monorail. Long connecting leads and hoses to guns. Large quantity of spare parts and extra tips.

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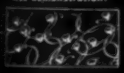

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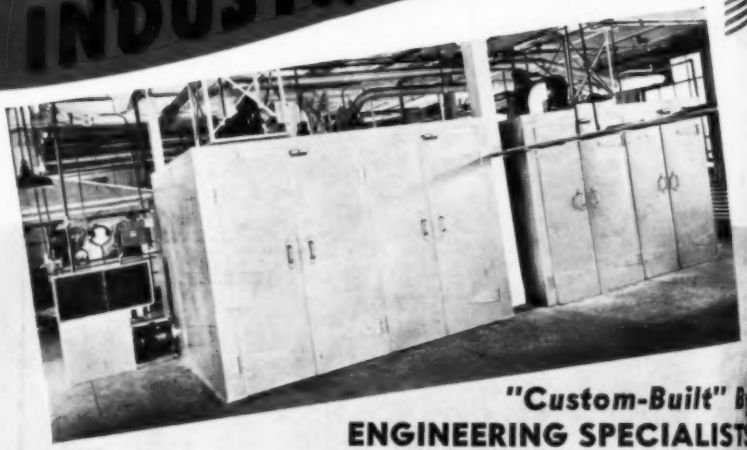

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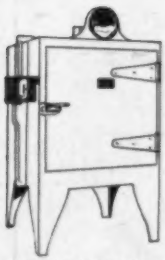

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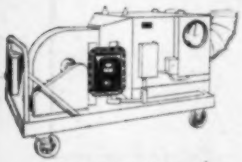

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The long background of experience, expert knowledge, and scientific approach of the Kirk & Blum Engineering staff is your positive assurance of high oven efficiency and economical operation.

Kirk & Blum specializes in oven installations of *all types*—continuous conveyor drying and baking ovens, core baking ovens, laboratory ovens, etc. These systems are guaranteed to speed production, cut fuel and labor costs, conserve floor space, and promote *maximum safety*.

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